REPORT RESUMES

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ANALYSIS OF METHODS IN WHICH APPLICATION OF NEW
COMMUNICATIONS MEDIA MAY IMPROVE TEACHER PREPARATION IN
LANGUAGE, SCIENCE AND MATHEMATICS.
BY- TINTERA, JAMES B.
MICHIGAN ST. UNIV., EAST LANSING
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THREE METHODS OF EMPLOYING COMMUNICATIONS MEDIA FOR TEACHER TRAINING WERE USED TO TEST THREE HYPOTHESES--(1) STUDENT TEACHERS WHO ANALYZE THEIR TEACHING PERFORMANCE WITH THE HELP OF TAPE RECORDINGS WILL RECEIVE HIGHER RATINGS THAN STUDENT TEACHERS GIVEN ONLY CONVENTIONAL CRITIQUES, (2) STUDENT TEACHERS WHO ANALYZE THEIR TEACHING USING KINESCOPE (VIDEO TAPE) RECORDINGS WILL RATE HIGHER THAN STUDENT TEACHERS USING ONLY TAPE RECORDERS OR GIVEN ONLY CONVENTIONAL CRITIQUES, AND (3) AFTER 6 MONTHS, STUDENT TEACHERS USING KINESCOPE RECORDINGS WILL RECEIVE RATINGS HIGHER THAN STUDENTS USING TAPE ONLY, WHO IN TURN WILL RATE HIGHER THAN STUDENTS RECEIVING ONLY CONVENTIONAL CRITIQUES. RESULTS SHOWED THE MEASURING INSTRUMENTS REVEALED NO SIGNIFICANT DIFFERENCES IN STUDENT TEACHER RATINGS TO SUPPORT EITHER HYPOTHESIS ONE OR TWO. AFTER SIX MONTHS STUDENT TEACHERS TRAINED WITH THE AID OF KINESCOPE RECORDINGS RECEIVED RATINGS THAT WERE NOT SIGNIFICANTLY DIFFERENT FROM TEACHERS USING TAPES, BUT BOTH GROUPS RATED SIGNIFICANTLY HIGHER THAN STUDENTS RECEIVING ONLY CONVENTIONAL CRITIQUES. ALTHOUGH THE TEST INSTRUMENTS FAILED TO SHOW SIGNIFICANT DIFFERENCES IN RESULTS OF SOME PHASES OF THE TESTING, THE STUDENTS WHO PARTICIPATED IN THE SELF-OBSERVATION (LISTENING) SITUATION SHOWED THE EXPERIENCE HELPED BY GAINING (1) HIGHER AVERAGE SALARIES, (2) IMPROVED DRESS AND BEHAVIOR, AND (3) POSITIVE REACTIONS OF FELLOW STUDENTS AND PERSONNEL OFFICERS. (AL)

ED003527

008E

STUDENT TEACHING

Analysis of Methods in Which Application of New Communications Media May Improve Teacher Preparation in Language, Science and Mathematics

James B. Tintera, Professor
Mass Communications Center
Wayne State University, Detroit 2, Michigan

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TABLE OF CONTENTS

Chapter 1 Research Design 1

Chapter 2 Presentation of Idea 12

Chapter 3 Results, Conclusions and Recommendations 29

Appendix A Glossary for Classroom Observation Record-Teacher Characteristics 39

Appendix B Students' Comments. 44

Appendix C Mitzel-Medley Tests 57

Appendix D Calculations 106

CHAPTER 1

RESEARCH DESIGN

This is a study of the effectiveness of the following three student teaching critique methods: (1) the conventional supervisor observation and conference, (2) supervisor observation supplemented by three voice tape recordings which were used in conference, and (3) supervisor observation with three kinescopes of student teacher performance used in conference. A different critique method was used for the three groups, each consisting of 22 elementary school practice teachers. Twenty-two supervisory teachers were selected from the public schools and served in rotation for each situation. Measures of performance used before, immediately after, and after six months of teaching experience included the Minnesota Teacher Attitude Inventory, the Ryan Observation Scale, the Student Attitude Scale of Teaching Problems, Teacher Self-Describer, and Supervisory Rating.

The entire experiment was carried out three times: (1) winter, 1960; (2) spring, 1960; and (3) fall, 1960. Each time, it was carried out with a new group of 22 student teachers who were in turn divided into three groups: (1) the conventional supervisor observation and conference, (2) supervisor observation supplemented by three voice tape recordings which were used in conference, and (3) supervisor observation with three kinescopes of student teacher performance used in conference. However, the same twenty-two supervising teachers participated in the whole experiment.

The method of selection of the three groups of teachers followed this pattern.

Selection of Sample

On January 4, 1960, twenty-two student teachers reported for twelve weeks of full-time work in the East Lansing Elementary School System. Their supervisory teachers were the twenty-two classroom teachers in kindergarten through sixth grade who took part in the experiment. The twenty-two classrooms were situated in five elementary schools; thus, four or five student teachers were assigned to each school.

The twenty-two student teachers were chosen by the usual selection method from the full list of Michigan State University students enrolling for teacher training in elementary schools. The usual selection is made by a council of education students which includes an officer and a representative from each of the student clubs and groups in the College of Education. Each student teacher indicates her choice of teaching area on the application form. Those who wish to be assigned to one of the nine communities in the East Lansing area because of hardship involved in other locations also fill out a form describing their case. The College of Education faculty indicates the total number of students that can be assigned to each school system. Two committees review the applications in a joint meeting. One committee is chosen from the student council mentioned above; the other is a faculty-student teaching committee. A summary sheet is made showing the tentative assignments and some information affecting the student's priority for the East Lansing area. The priority schedule used as a guide is as follows:

I. Widows with children
Married students with children, with one or both working for a teaching certificate

II. Married students with one member of the family working for a teaching certificate

III. Single, self-supporting students, financial hardship

IV. Music Scholarship students
Presidents of all campus student governing bodies as:
    Student Government
    Association of Women Students
    Inter-Fraternity Council
    Pan Hellenic Council

The committees' reports on assignments are brought before the entire education student council and voted upon. If a student wishes, he may appeal his assignment to an appeal committee which then makes a final assignment.

Among the student teachers starting in January, 1960, ten were not qualified as hardship cases, but for practical reasons were chosen from the group that were originally assigned to schools in the Grand Rapids area.

For this experiment, about one third of the twenty-two student teachers assigned to the East Lansing area was a control group and received its instruction in the usual manner. Another third, the voice tape group, had the help of a voice tape recording of its teaching performance. The assignment of a student teacher to any given method was determined by the school in which her supervising teacher was located.

From the five schools in the experiment, two started with the kinescope method. Because communication lines were needed to carry the signal between the television mobile unit and the television station where the recordings were made, these two schools were selected on the basis of available lines as determined by the Michigan Bell Telephone Company. Presumably, this did not bias the experiment. The schools for the other two methods, voice tape and control, were selected at random from the remaining three schools.

The supervising teachers were selected from the classroom teachers in the East Lansing School System, primarily on the basis of their volunteering to take part in the experiment. They were chosen from only those teachers who expected to be in the school system during the experimental phase of the project (to December, 1960). They were also chosen from only those teachers eligible for student teacher work. Such eligibility requirements are a total of two years' experience in the present school system and a minimum of three years' teaching experience.

Each supervising teacher began the experiment using one of the three methods indicated above, depending on the school she was in. For the second and third replications of the experiment, each teacher was assigned to the other two methods, so that by the end of the experiment each supervising teacher would have taken part in all three methods of instruction.

Method of Operation: Voice Tape Recordings

To make the voice tape recordings, an audio specialist from the Audio-Visual Center at Michigan State University installed two or three microphones in the classroom after school the preceding day. The microphones were connected to a tape recorder in the next room or in the hall. The supervising teacher notified the audio specialist in advance the approximate times during the day that the student teacher would be teaching. This recording was done without entering or disturbing the classroom. In fact, neither the student teacher nor the pupils knew exactly which thirty minutes during the day was recorded, although they did see the microphones in place on the day that the recording took place.

During the twelve weeks, three voice tape recordings of each student teacher were made during the first and second weeks, the fifth and sixth weeks and the ninth and tenth weeks. During the first two weeks, then, the audio specialist needed to make tape recordings in about seven classrooms. As there are usually ten school days in a two-week period, this allowed him some leeway in making recordings.

Each half-hour voice tape recording was given to the supervising teacher and the student teacher as soon as possible, probably within 24 hours after it was made. The supervising teachers had charge of these tapes until the twelve-week training period was completed.

Use of Recordings

It was felt that the supervising teacher and student teacher should be free to use the recordings as they wished. But, since this use might have had an important bearing on the results of the experiment, the supervising teachers made voice tape recordings of some of their conferences with the student teachers. They kept a log of dates, lengths, and places of these discussions. This experiment was concerned essentially with determining whether or not there were different results from three methods of teacher training. It is possible that differences in the ways the recordings were put to use might have determined, in part at least, the presence or absence of such differences. Thus it was important to keep some record of the manner in which the recordings were used, so that there may be an explanation as to why differences do or do not exist. Tape recorders needed by the supervising teacher or the student teacher were made available upon request to the project assistant. Recorders were furnished by the Audio-Visual Center at Michigan State University.

Method of Operation: Kinescope Recordings

The third group of student teachers, the kinescope group, was televised according to the same kind of schedule as the voice tape group. In the spring of the project, directors and engineers from the television station carried out a pilot study to find out what procedures and techniques would be needed to televise from the public school classrooms. The staff at the Michigan State University television station, WKAR-TV*, included persons who had experience with television production, including controlling light and sound, placing of cameras, using a mobile unit, video taping and kinescoping.

The day before the student teacher was to be televised, the television crew set up the cameras and microphones. Twenty-three classrooms in five school buildings were part of the experiment. The crew used two or three microphones depending on the classroom. They installed two television cameras in fixed positions on the top of a piano situated at one corner of the room in such a way that the student teacher could be kept in view all the time whether she was at the blackboard, at her desk, or working with an individual pupil at his desk. All classrooms had pianos as standard equipment.

The wires from the microphones and cameras led out through a window to a mobile unit outside the school building. This mobile unit was connected to the school for 110-volt, 40-ampere electrical power. It was connected to WKAR-TV by either coaxial cable or micro-wave relay by the Michigan Bell Telephone Company. In the mobile unit was an audio specialist, a video specialist, and the television director. The television director operated a switch which determined which camera image was being recorded. One television director who was thoroughly familiar with the objectives of the project was in charge throughout. The mobile unit was connected to the television station with a telephone line so that the television director could talk with the person in the station who was making the video tape recording.

* Now WMSB

The television cameras were equipped with electronic shutters so that it was possible to operate them at any time without entering the classroom and without the knowledge of the student teacher or her pupils. Thus the television director could look at the television monitors and determine when to start recording. Throughout the experiment the goal was to disturb the classroom teaching situation as little as possible.

As the signal came from the mobile unit to the television station, it was recorded on video tape. It was then transferred to kinescope so that it could be shown on a standard movie projector. The supervising teacher received the kinescope as soon as it was processed, usually within a week.

No less than fifteen nor more than forty minutes were recorded at any one time. The fifteen-minute minimum was decided by the supervisor of student teachers who felt that shorter periods would be invalid and not representative. A forty-minute recording could show the introduction and preparation for the day's lesson, the twenty-minute lesson (standard for elementary grades) and the lesson follow-up. The finished recording in every case was about thirty minutes long.

The use of kinescopes and the records of their use were the same as those described for the voice tapes. Similarly, the kinescopes were kept by the supervising teachers until the twelve-week training period was ended.

At the end of twelve weeks, after the grades of the student teachers were posted, the student teachers were asked to give the voice tapes and kinescopes to the College of Education for possible help with future teachers. The student teacher had the option, however, of destroying the recording.

Evaluation

To evaluate the effectiveness of these three methods of training student teachers, several measuring instruments were used. To get information about the student's attitudes, the Minesota Teacher Attitude Inventory, the Student Attitude Scale of Teaching Problems, and the (Teacher) Self-Describer were used. These also gave information indirectly about the student's ability to teach. In addition, the Ryan Observation Scale and Supervisory Rating indicated the student's teaching proficiency.

At the beginning and end of the term and about six months after the student began professional teaching, three of these instruments were used: The Minnesota Teacher Attitude Inventory, the Student Attitude Scale of Teaching Problems, and the Teacher Self-Describer. The Ryan Observation Scale and a Supervisory Rating were used twice: at the end of the term and six months after the beginning of professional teaching.

The Supervisory Rating, made by the supervising teacher at the end of the term, was based on the Student Teaching Evaluation Form now in use. A summary of this information is expressed as a grade given as two letters, i.e., AB or BB. The Student Teaching Evaluation Form consists of thirty-six items rated from one to ten. This form is filled out by the supervising teacher and the student teacher coordinator working independently of each other, at the end of the twelve weeks. The grades are then determined by the coordinator in conference with the supervising teacher concerned. The coordinator has full responsibility and final authority regarding grades, although in practice she depends considerably on the recommendations of the supervising teacher.

During the term, voice tape and kinescope recordings were examined in an attempt to find clues which would help explain any differences in the effectiveness of the three methods used.

Control of Effects of Attitude

In experiments involving people certain factors often should be considered and, as far as practical, controlled. One such factor is the attitude of the people involved in the experiment.

Before the twelve-week period a special conference was arranged with the supervising teachers to emphasize the need, from a research standpoint, for preventing bias in the experiment. Specifically, they were requested not to discuss the experiment with other teachers until it was completed.

At these conferences, the general attitude toward the experiment was favorable. Therefore, any bias by the supervising teacher and student teacher was in the direction of improved results by using the recordings.

To control possible bias of the two researchers who made the Ryan Observation Scale, they were kept from knowing which experimental methods were used on each student teacher. These methods were known to the project director and the project assistant but not to the researchers.

In addition, the student teacher coordinator from the College of Education, who was responsible for the supervisor's grades, scheduled her public school visits in such a way that she did not know what experimental methods were used by any given student teacher until after the grades were determined.

Hypotheses

The following specific hypotheses were tested, especially as they apply to the teaching of language, science and mathematics.

1. The student teacher who has an opportunity to analyze her teaching with the help of voice tape recordings will rate higher on all measuring instruments than the student teacher who receives only the conventional critique.

2. The student teacher who has an opportunity to analyze her teaching with the help of kinescope recordings will rate higher on all the measuring instruments used than the student teacher who receives only the conventional critique or the voice tape recordings.

3. After six months of professional teaching, those teachers trained with the aid of kinescope recordings will rate higher on all measuring instruments than those teachers trained with the aid of voice tape recording, who in turn, will rate higher than those teachers trained with the conventional methods.

The final evaluations, made in the spring of 1962, ended the experimental phase of the project.

The personnel taking part in the experiment were:

Project Director	Dr. James B. Tintera
Researchers	Charles Nearing, John Paterson, Stuart K. Bergsma
Project Asst. and Secretary	Nancy DeBoer, Sylvia Hatcher, Wanda Birchfield, Eugenia Grabowski
Television Engineer	Lynn Towsley
Television Production	Lee Frischknecht
Television Direction	Daniel Baker

Audio Specialist	Fred Dixon
Report Editor	Leontine Keane
Student Teacher Coordinator	Mrs. Dollie Kunkel
Elementary Coordinator, East Lansing Public Schools	Ward Sinclair
Supervising Teachers	Gaila Barbaur, Edna Beyers, Shirley Bosch, Juanita Brandon, Mildred Buxton, Susan Cochran, Marjorie Gregg, Thera Hammond, Edith Ireland, Frances Issott, Beatrice B. Kenerson, Florence Kocsis, Ruby Kuhn, Carolyn Lee, Edith Lombardini, Jessie Melin, Evelyn Pedrey, Shirley B. Quimby, Dorothy Swope, Helen Whelan, Elaine Williams, Rosemary Wright

The materials and equipment included the following:

For Television Recording:

2 RCA image orthicon cameras, 35mm and 50mm lenses

1 RCA field switcher

1 General Precision Laboratories kinescope recorder

1 Ampex video tape recorder

3 Electovoice 646 microphones

16mm film projectors as needed by teachers

For Voice Tape Recording:

1 Ampex tape recorder

1 Wollensak tape recorder

3 Electrovoice 646 microphones

Tape recordings as needed by teachers

For further information contact:

Dr. James B. Tintera, Professor of Speech, Wayne State University,
Detroit 2, Michigan

CHAPTER 2

PRESENTATION OF IDEA

After careful selection of student teachers for placement in the five school buildings equipped with the necessary electronic equipment for this experiment, the study began. The following chart indicates the grade point average for each student for all college courses taken prior to the beginning of this experiment. Also indicated are the birth dates for each individual. Careful analysis will show that there are no significant differences among the students, regarding either age or previous academic grades received. The other item on the chart gives the grade received in the "student teaching course." Analysis of these data indicates no significant difference between the students selected for this experiment.

A comparison was made between the students selected for this project and students in general who are eligible for student teaching. On the basis of sex, age, previous grade point average, amount of previous experience in teaching situations, and the nature of their college courses, there was no significant difference discernible between the experimental student teachers and student teachers in general.

It can thus be stated that the student teachers selected for this experiment represent the student teaching body as a "whole" for the areas deemed to be significant by the research team. Random selection defined the group of the experimental student teachers regarding their placement in the video tape recording group, the audio recording group, and the control group.

CHART 1

	Grade	Name and Student Number	Av. Grade	Birthdate
	P	Johnson, Norma 150012 (Ackley)	P	4-12-39
	P	Adams, Eloise 162001	P	12-28-39
	P	Aubertin, Elizabeth 174225	P	10-13-38
	P	Bailey, Carol 124970	P	12-12-37
	A	Bauder, Carol L. 163142	A	3-25-31
	A	Baumgartner, Barbara 021779	A	1-2-25
	P	Beatty, Kay 124324	P	4-17-38
421A-B 421B & 423 -A		Beebe, Donna R. 194751	3.7	2-25-38
	P	Berry, Sally 302261	P	1-15-38
421A-B 421B-A 423 -A		Howlett, Patricia 120758 (Blue)	3.7	5-7-34
421A-B 421B-B 423 -A		Bowles, Ruth 120641	3.3	11-9-36
421A-B 421B-B 423 -A		Boyne, Diana J. 154518	3.3	6-5-36
	C	Brewster, Karen 174307	2.0	9-4-39
421A-C 421B-B 423 -B		Brown, Paula M. 150211	2.7	2-14-40
400A-A 400B-A		Carey, Beverly 158666 (Burgess)	4.0	2-5-30
	P	Porter, Carol 150233 (Burt)	P	5-10-39

Grade	Name and student number	Av. Grade	Birthdate
421A-B 421B-A 423 -B	Claycomb, Sharilee A. 206697	3.3	1-16-39
P	Lucas, Carolyn 150293 (Cleary)	P	4-24-39
421A-B 421B-A 423 -A	Curtis, Karen 121591	3.7	4-26-38
421A-B 421B-B 423 -A	Davies, Beverly 068268	3.3	5-6-31
P	Donahue, Sandra 122711	P	4-16-38
421A-C 421B-B 423 -B	DuBrin, Joyce Rae 153957	2.7	2-28-40
421A-C 421B-B 423 -B	Eberhardt, Shirley 160152	2.7	2-16-23
421A-A 421B-B 423 -B	Ferguson, Caryl 120567	3.3	12-10-38
421A-C 421B-B 423 -B	Fitzpatrick, Kay 121375	2.7	12-29-38
421A-B 421B-B 423 -A	Gardner, MaryLee 121613	2.3	11-24-38
C	Gillett, Mary A. 169343	2.0	4-13-38
P	Gruber, Mary 157029	P	1-23-38
P	Harness, Sara 150534	P	12-14-38
421A-B 421B-A 423 -A	Hoersch, Mary E. 150666	3.7	8-22-39

Grade	Name and student number	Av. Grade	Birthdate
421A-B 421B-A 423 -A	Holmes, Christine M. 176128	3.7	9-11-28
421A-C 421B-B 423 -B	Holmes, Judith 150671	2.7	8-7-39
P	Horsley, Nancy 190558	P	4-23-38
421A-C 421B-B 423 -C	Howard, LeRoy W. 062546	2.3	5-7-30
421A-B 421B-A 423 -B	Janssen, Constance A. 100695	3.3	10-11-35
421A-B 421B-A 423 -B	Klaver, Lucinda L. 152253	3.3	7-23-37
P	Marolf, Carolyn 115776	P	7-23-37
421A-B 421B-B 423 -A	McKim, Sara L. 153099	3.3	4-15-39
421A-C 421B-C 423 -D	Messner, Joan Ann 113850	1.7	4-24-38
P	Milne, Nancy 152300	P	1-27-38
421A-B 421B-B 423 -A	Morsches, Jane 122343	3.3	10-23-38
421A-B 421B-B 423 -A	Newlin, Delilia 170191	3.3	9-24-37
421A-C 421B-B 423 -B	Nichols, Bette 100157	2.7	1-17-35

	Grade	Name and student number	Av. Grade	Birthdate
421A-B 421B-B 423 -A		Noullet, Linda 124714	3.3	9-25-38
421A-C 421B-B 423 -C		Parrish, William J. 067334	2.7	8-24-30
421A-B 421B-A 423 -A		Pekrul, Mary Ann 157465	3.7	10-13-38
	P	Perrin, Thomas 097982	P	2-28-33
421A-B 421B-A 423 -A		Peterson, Diane 122547	3.7	8-6-38
	P	Peterson, Sandra 153738	P	2-6-38
421A-A 421B-A 423 -A		Pickens, Patti B. 194990	4.0	7-7-39
421A-B 421B-A 423 -A		Rausch, Babette 122124	3.7	6-18-38
421A-B 421B-B 423 -A		Rivers, Chloe 126428	3.3	7-11-38
421A-B 421B-B 423 -A		Robinson, Betty 122684	3.3	8-24-38
	P	Roe, Lenore 183035	P	9-11-39
	P	Rue, Clyde 101132	P	8-2-34
421A-B 421B-B 423 -A		Rysenga, Edith 189863	3.3	9-18-38
421A-B 421B-A 423 -A		Scholman, Nancy Lee 172751	3.7	5-30-38

Grade	Name and student number	Av. Grade	Birthdate
421A-B 421B-B 423 -A	Shearer, Marilyn R. 194560	3.3	9-29-38
421A-B 421B-B 423 -B	Smith, Marilyn F. 125192	3.0	7-18-37
P	Snyder, Mary 150848	P	5-9-39
421A-B 421B-A 423 -A	Kroly, Mary Lou 156893 (Snyder)	3.7	12-26-36
421A-C 421B-C 423 -B	Thorne, Judith 155913 (Spaulding)	2.7	6-8-39
421A-C 421B-C 423 -B	Stetler, Patricia 112777	2.7	10-5-37
P	Weber, Faye 065283	P	5-19-31
421A-B 421B-A 423 -B	Yost, Zoe A. 077808	3.3	1-15-34

CHART NO. 2

Chart number 2 is a composite chart showing average scores on the paper and pencil test instruments given each student teacher during the experimental period. It will be noted that three test instruments were given prior to the student teaching experience, after the student teaching experience, (called post) and after six months of actual teaching in a public school (called post-post).

Composite Sheet

Minnesota Teacher Attitude Inventory:

	Pre	Post	Post-Post
Control	3889.200	4032.818	4714.000
TV	2184.227	2443.136	2567.615
Tape	4508.095	3803.904	2888.466

Teacher Self-Describer:

	Pre	Post	Post-Post
Control	2842.000	1209.238	1586.117
TV	2099.052	1790.909	1076.692
Tape	2661.823	1050.850	1125.533

Mitzel-Medley:

	Pre	Post	Post-Post
Control	37113.000	27584.818	28142.250
TV	37625.681	22199.818	24998.000
Tape	34479.095	26168.380	23447.866

CHART NO. 3

Chart number 3 represents the average scores on the Observation Record-Teacher Characteristics which were collected twice. This test instrument, calling for carefully recorded ratings on pupil behavior, teacher behavior and classroom atmosphere, was only collected at the time the student teachers in the experiment were actually teachers. Thus, it can only carry the designation post-post, although there are two sets of data collected at least two weeks apart. Appendix A shows the glossary of classroom Observation-Teacher Characteristics used to collect these data.

Ryans:

	Post-Post
Control	567.347
TV	517.942
Tape	543.265

CHARTS NOS. 4 - 5 - 6

The Minnesota Teacher Attitude Inventory was designed to sample opinions about teacher-pupil relationships. Charts 4, 5, and 6 indicate the pre, post, and post-post scores collected in statistical terms regarding the scores on the teaching students in the experiment. It will be noted that the mean scores lower slightly and the similarity between the groups and among the methods changed from significant to non-significant during the course of the experiment. It will also be noted that the between-terms analysis changed from significant at the one per cent level to non-significant.

This indication that was common amongst all student teachers in the project (showing common shifts) was to be expected since student teaching was designed to provide sufficient experience and analysis about teacher-pupil relationships so that the student teachers may have a common base of information, background and experience for professional teaching.

Minnesota Teacher Attitude Inventory: (Pre) Chart No. 4

	df	ss	ms	F	P	Accept or Reject
Method	2	6732.475	3366.237	8.190	$<.001$	Reject
Term	2	7630.698	3815.349	9.282	$<.001$	Reject
M x T	4	16806.242	4201.560	10.222	$<.001$	Reject
Within	54	22194.332	411.006	-	-	-
Total	62	53363.747	-	-	-	-

Minnesota Teacher Attitude Inventory: (Post) Chart No. 5

	df	ss	ms	F	P	Accept or Reject
Method	2	5695.725	2847.862	2.489	n.s.	Accept
Term	2	4016.415	2008.207	1.755	n.s.	Accept
M x T	4	13138.698	3284.674	2.870	n.s.	Accept
Within	56	64070.024	1144.107	-	-	-
Total	64	86920.862	-	-	-	-

Minnesota Teacher Attitude Inventory: (Post-Post) Chart No. 6

	df	ss	ms	F	P	Accept or Reject
Method	2	2954.625	1477.312	2.394	n.s.	Accept
Term	2	717.972	358.986	.581	n.s.	Accept
M x T	4	6774.635	1693.658	2.745	n.s.	Accept
Within	36	22207.968	616.888	-	-	-
Total	44	32655.200	-	-	-	-

CHARTS NOS. 7 - 8 - 9

Teacher Self-Describer:

Information is presented in the same fashion with the statistical analysis scores found on charts 7, 8, and 9. This instrument is designed to identify the opinion of the teacher regarding his or her perception of teaching activities in relation to those of the ideal teacher. This instrument gathers data and information concerning the perceptions of the teacher's self-identified activities, the reasons for performing these activities, and the motivation for such performance. It will be noted that in three testings, there were non-significant differences within, among, and between the terms for all three testings. This, too, is to be expected since the previous training and background of these student teachers was designed to prepare a common base of perception and actions of the prospective teachers. A commonality of the "ideal" teacher is to be expected since the professional program of teacher training stems from the use of textbooks, lectures and discussions with the same basic information and point of view.

It is interesting to note that there were no significant differences among the participants in this experiment during the previous two test instrument uses. One of the goals of this experiment was to interfere as little as possible with the on-going teacher training program. Since there were no significant differences in teacher attitudes, their opinions regarding perceptions of teaching and that of the ideal, it can be stated that experimental activities did not interfere with the preparation of these student teachers. Thus, it seems evident that the testing, the use of electronic equipment and the actual experimental activities did not have any effect on the development of teachers in this professional teacher training program.

Teacher Self-Describer: (Pre) Chart No. 7

	df	ss	ms	F	P	Accept or Reject
Method	2	1138.791	569.395	.282	n.s.	Accept
Term	2	10973.263	5486.631	2.723	n.s.	Accept
M x T	4	20387.127	5096.781	2.529	n.s.	Accept
Within	48	96714.960	2014.895	-	-	-
Total	56	129214.141	-	-	-	-

Teacher Self-Describer: (Post) Chart No. 8

	df	ss	ms	F	P	Accept or Reject
Method	2	948.200	474.100	0.398	n.s.	Accept
Term	2	1125.174	562.587	0.472	n.s.	Accept
M x T	4	3008.218	752.054	0.631	n.s.	Accept
Within	54	64279.821	1190.367	-	-	-
Total	62	69361.413	-	-	-	-

Teacher Self-Describer: (Post-Post) Chart No. 9

	df	ss	ms	F	P	Accept or Reject
Method	2	5570.916	2785.458	2.290	n.s.	Accept
Term	2	431.035	215.517	.177	n.s.	Accept
M x T	4	7433.823	1858.455	1.527	n.s.	Accept
Within	36	43788.471	1216.346	-	-	-
Total	44	57224.245	-	-	-	-

GRAPHS NOS. 1-2-3

Mitzel-Medley

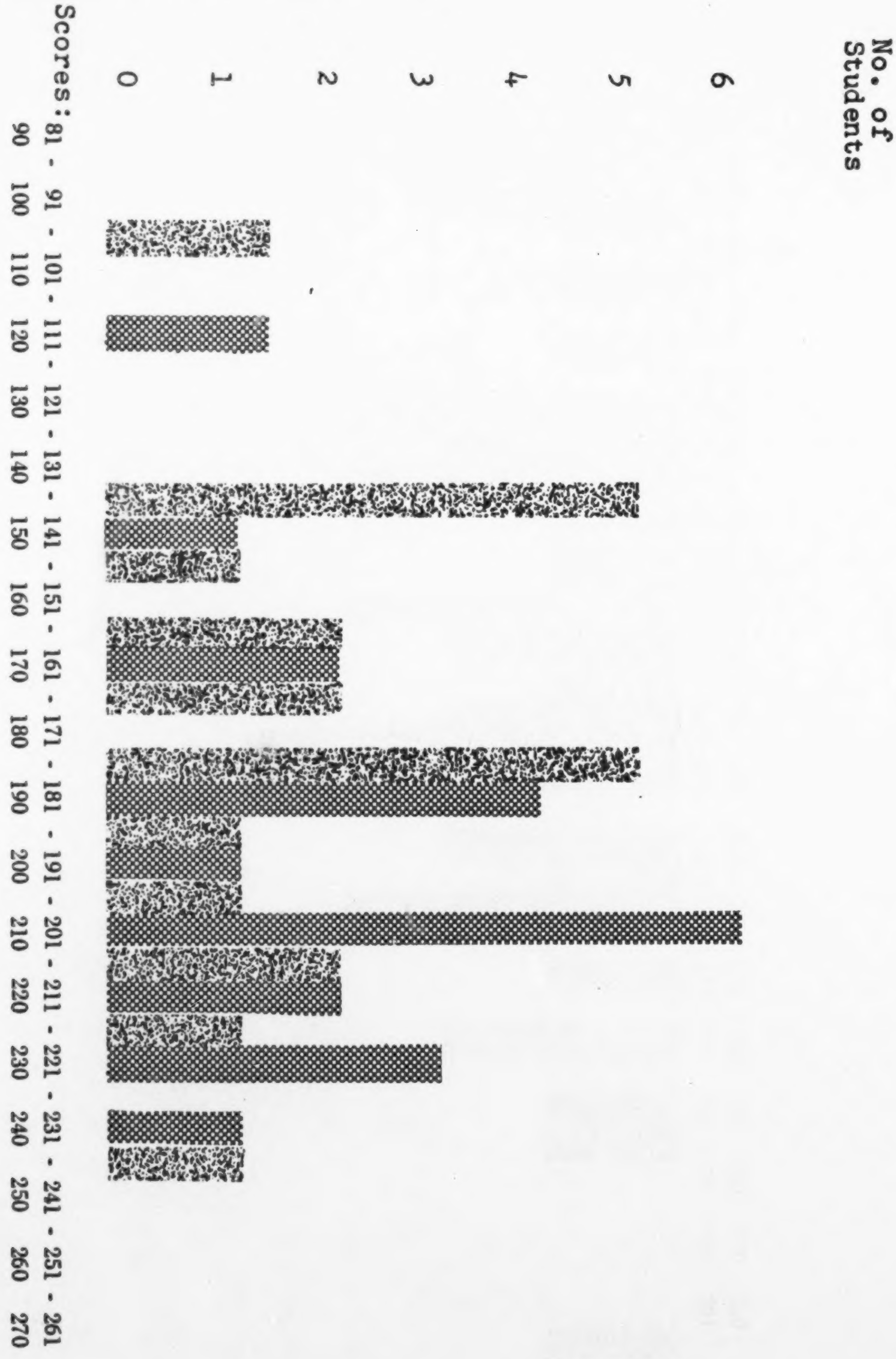
Material is presented in slightly different fashion in Appendix C. Charts 10, 11, and 12 also indicate the statistical analysis of scores on this test instrument. It will be noted that there were no significant changes among, within, or between the groups of students involved in this experiment during the length of the project. Graphs are presented only in the Mitzel-Medley Test. These graphs are utilized because of the information they present which cannot be understood in any other fashion.

The Mitzel-Medley Form "A" scale is designed to identify the problems a teacher perceives he or she may face and the self-evaluated significance of each problem. It will be observed that all groups identified many problems within the four categories at the beginning of the student teaching experience. The mechanics of operating a classroom (classroom management), the orientation to the children (perception of children's abilities), the organization of classroom facilities (seats, tables, chalkboards etc.), and the orientation to the school system (administrative and parental) were all rated high in significance and importance prior to student teaching. The number and significance declined equally among the groups after student teaching (post test) and after professional teaching for six months (post-post test). Observe the tape recorded group and its relative consistency during the period of the experiment. The tape recording group behaved slightly differently from the control and video tape recording group although there are no statistically meaningful differences between the groups during the course of the experiment. Graphs 1, 2, and 3 show the total testing results for each term of the experiment. Note the downward trend in the total scores which is found commonly in each term of the experiment. This should be expected since one of the objectives of the professional teacher program and the student teaching experience is to cause a decline in the perception of the number of problems a student teacher will face as he or she goes into a teaching position. All calculations are available for the reader in Appendix D.

Total Testing for Spring Term, 1960

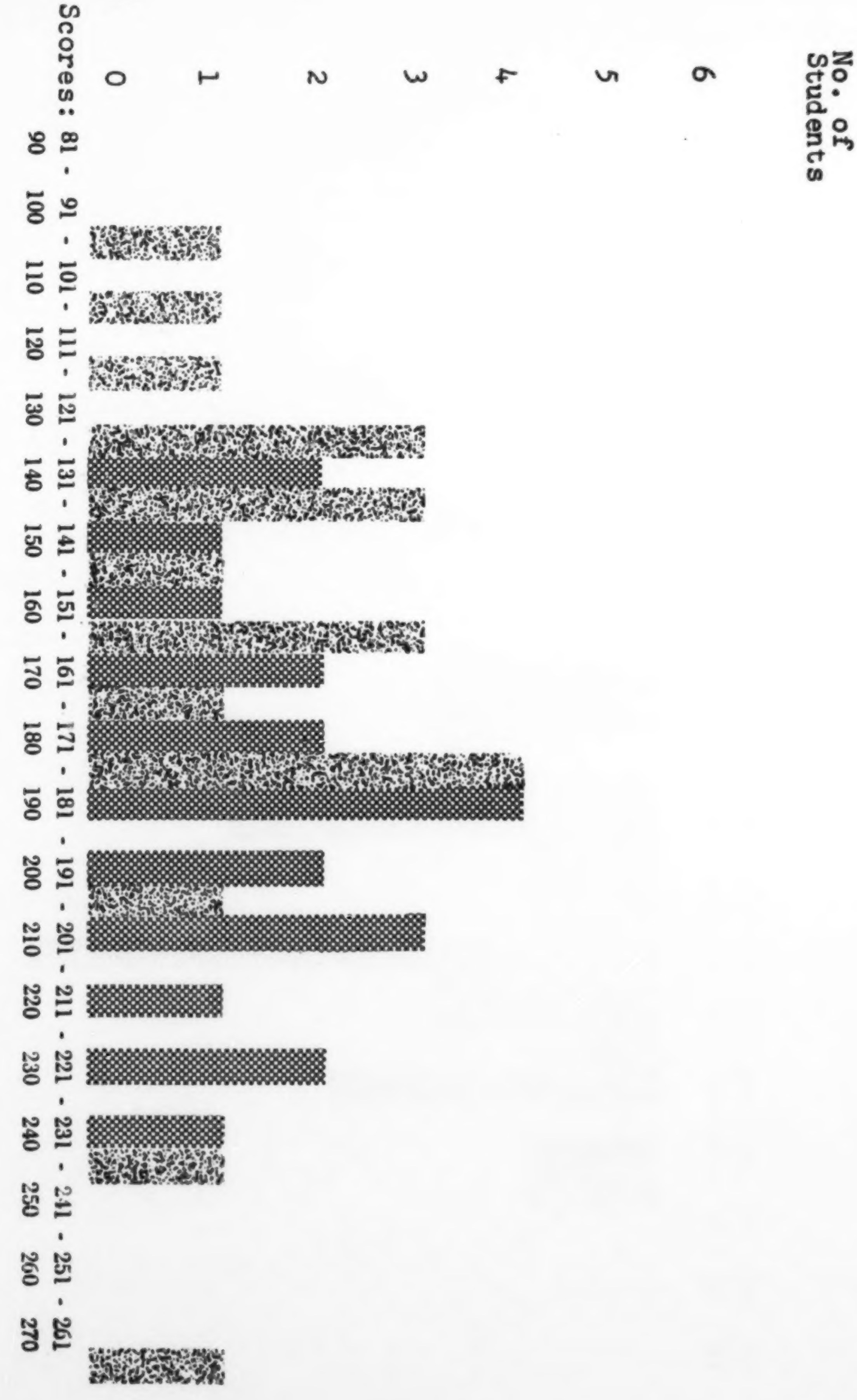
GRAPH 1

First Testing ▩ 21
Second Testing ▒ 22



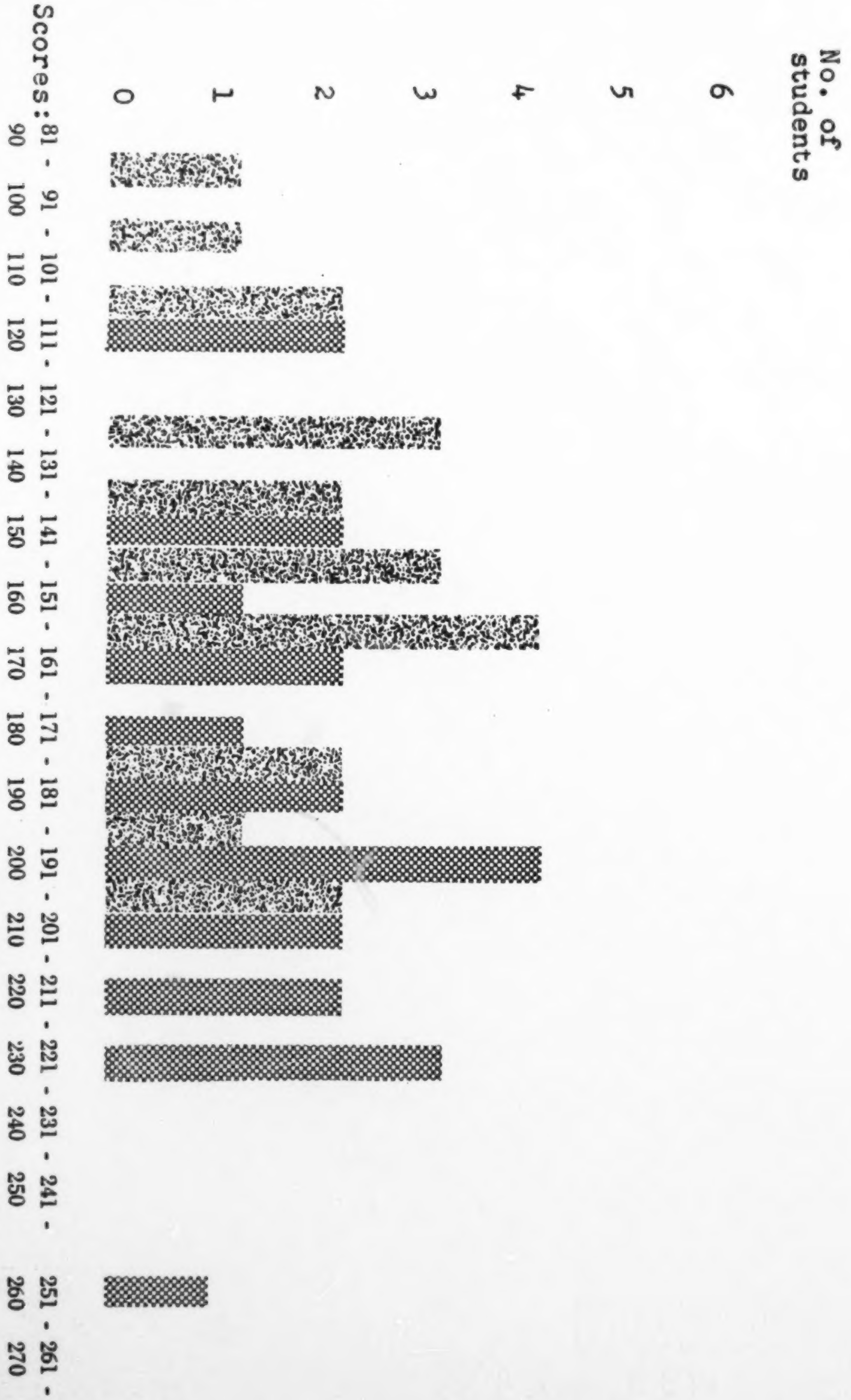
Total Testing for Fall Term, 1960 **GRAPH 2**

First Testing ▩ 21
Second Testing ▨ 21



GRAPH 3

Total Testing for Winter Term, 1960
First Testing-- ▩ 22
Second Testing-- ▨ 22



CHAPTER 3

RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

General Information

This study was one of the earliest funded Title VII, National Defense Education Act of 1958 projects. The study began in 1959 with the search for test instruments which could be used for evaluating teacher competency, teacher self-perception and measuring teacher skills and abilities. Since test instruments had not been developed and/or standardized with these objectives in mind, it was necessary to develop and use test instruments which are not as fully refined as a researcher would wish.

One of the main purposes of this study was to investigate and experiment with the new media in an on-going program of teacher training. In this respect, the design of the study was more experimental than it was research-based. It will be noted that opinions were solicited, reactions were recorded and varying evaluative ratings were gathered regarding the entire project as well as elements within it. The results of this study, therefore, cannot be considered as definitive, but may be considered exploratory and suggestive.

When exploratory studies are undertaken, interested persons are inclined to project results into areas which will not bear up under close and intensive scrutiny. This study fits this general classification and must be considered as an experimental deviation from the traditional "regular" method of student teaching in a teacher training program. Although the results of this study indicate that the general findings fall into the category of no significant difference found in the test instruments used to determine variations among the groups of student teacher trainees going through the experimental and those going through the control phases of the experiment, there were some differences found which may be summarized and categorized as suggestions and recommendations which hold implications for teacher training programs.

It will be noted that the students in the experimental phase of the study were equally divided by their negative and positive reactions to being a part of an experimental study. It will also be noted that the students in the "control" section of the experiment were also equally divided in their reactions to the "regular" student teaching phase of their college career in an uncommitted or undecided personal reaction situation. Traditionally, faculties and curriculum-decision makers have not given much consideration to student opinion regarding curriculum structure and training programs. Therefore, it seems significant to project these attitudes directly into this particular experiment. It does not seem significant to project attitudes when students either like or dislike the training program they are undertaking, especially since there is no tendency in either direction.

One of the ancillary areas of investigation in this experiment included attempts to discover the impact that these students would have upon school administrators and teachers when they applied for their first teaching position. Although no formal rating instruments were used, discussions and interviews were held with the personnel officers responsible for the hiring of the teachers who had gone through the training program covered by the experiment. Almost without exception, personnel officers indicated that they were impressed by the verbal ability and personal appearance of those teachers who had been in the video-tape or voice-tape recording groups. These opinions were borne out in a consolidation (for comparative purposes) of the beginning salaries of the teachers in the experimental group. While the teachers in the "control" group received an annual average salary of $4,050 per year for the first year of teaching, the teachers in the "experimental recorded" groups received average salaries of $4,175 for the same period of time. As soon as this information was available, the research teams underwent an exploratory interview session with the administrative officers (principals) and the fellow-teachers in the schools in which the new teachers were actually teaching. No formal investigation was undertaken in this respect; however, it should be reported that there seemed to be evidence of more maturity and a demonstrated ability to "get along with others" among the students who had been in the "experimental recorded" groups of the experiment.

Initially it had been assumed that student teachers could derive aid from supervising teachers in a critique session during which both would view or hear recordings made of the student teacher conducting (or being responsible for) a class. The validity of this assumption emerged as questionable after the first term of the experiment. The relationships and rapport which are necessary between two individuals analyzing the recording of the behavior of one of them are not necessarily inherent in the supervising-teacher/student-teacher relationships. Some of the analyses which emerged from the critique sessions centered on personal appearance and dress of the student teachers. Others concentrated on behavioral characteristics of student teachers. Still others concentrated on psychological traits of learning. It was not possible to insure a common approach in the analytical sessions of the supervising-teacher/student-teacher recording critiques. The supervising teachers had not been trained in counseling techniques. The fact that the student teachers placed varying values on the expectations of the experiences labelled "student teaching" made communication even more difficult. It seems evident that formal investigation in this area is necessary. It cannot be assumed that supervising teachers, regardless of their ability or seniority, can establish the close relationship with student teachers which would allow for analyses of behavior on the part of the student teacher in a joint critique session.

It will also be noted that the data reported in Chapter 2 led to the implication that this experiment was not involved with, or had any impact on, the on-going operation of the five public schools involved. No direct evidence was gathered in this field. The principals of the five schools used for the experimental purposes were in constant consultation with the research team. Their suggestions and opinions were made part of the experimental study. Also, these principals and other school administrative personnel were requested to indicate and report any problems that may have resulted from the placing of television and voice recording equipment into the classrooms. No formal gathering of information in this respect was undertaken; therefore no conclusions can be made directly regarding the effect of the installation of equipment into an on-going school program. However, several incidents were reported. None of these had any significance by themselves but may be taken into consideration before reactions may be summarized. Examples of the incidents reported are: 1) A sixth grade boy, the son of a television engineer employed in a local commercial television station, when the television cameras were installed in that particular sixth grade classroom, had enough background training to be able to operate the camera controls which were an integral part of the camera itself. Prior to the beginning of one school day, the boy was able to manipulate the camera controls in such a way as to allow the camera picture to be seen on the view finder. Some of the pupils in the classroom were able to see other children in the classroom by observing the picture in the view finder. Control over this situation was exercised at once and this possibility was corrected (the situation never occurred again). 2) This entire experiment was predicated on the notion that television cameras are silent in their operation and, therefore, the student teachers would not know when the cameras were on or off. Two of the student teachers had sufficiently acute hearing to enable them to be aware of the rush of air coming from a three-bladed, four-inch diameter rubber fan in the television cameras. This fan operates intermittentlywhile the camera is in operation. The possibility of sound from this source was not considered by the research team. The small amount of sound emitted by the rush of air coming from this electrically driven fan was not expected to be audible in an elementary classroom.

These illustrations may be more indicative of the vast possibilities inherent in an experiment of this nature than they are negative comments regarding the conduct of the experiment itself.

Conclusions

The original research design of this experiment contained three hypotheses. Data gathered presents information regarding the acceptability and unacceptability of each of these hypotheses.

Hypothesis No. 1 The student teachers who have an opportunity to analyze their teaching with the help of tape recordings are rated higher on all measuring instruments used than those student teachers who receive the conventional critique. This hypothesis was not substantiated nor is the inverse of the hypothesis substantiated. Analyses of the gathered data indicate that there are no significant differences between those students who had recordings available to them and those students who received only the conventional critique. The available evidence indicates that the measuring instruments used were of the order which did not reveal sufficient differences to give an adequate representation for this hypothesis.

Hypothesis No. 2 The student teacher who has the opportunity to analyze her teaching with the help of kinescope (video tape recording) will rate higher on all measuring instruments than those student teachers who receive only the conventional critique or the voice tape recordings. This hypothesis was not substantiated. The difference between the three groups: video tape (kinescope recordings), voice tape recordings, and the control group, were insignificant on all of the measuring instruments in the terms of this hypothesis. The significant differences occurred in other situations from these.

Hypothesis No. 3 After six months of professional training, those teachers trained with the aid of the kinescope (video tape recording) will rate higher on all measuring instruments than those teachers trained with the aid of the voice tape recordings who, in turn, will rate higher than those teachers trained by the conventional method. This hypothesis was substantiated. After six months of professional training, the teachers trained with the aid of kinescope (video tape recordings) and voice tape recordings showed no significant differences between themselves; both, however, were significantly higher than the control groups on the test instruments.

Recommendations

One of the values of an exploratory study of this nature is the opportunity to objectively view the installation and operation of a new approach to a long-established operational system. In this experiment, newer media were utilized in the teacher-training aspect, commonly called "student teaching." The data collected and the impressions gained by the university faculty, critic teachers and students had an amount of "exploratory excitement" inherent in the development and operation of this project even though sufficient time was allowed to elapse so that the newness of the operation might "wear off." Evidence is available indicating that there was an attitude of general awareness of the newness of the curriculum structure and operation which had an effect on some of the results of the study.

With the above considerations in mind, the results of the study permit a number of general conclusions about the relationships of the three methods of student teaching to the attitudes of the students in the final stage of preparation for elementary school teaching.

1. Self-observation and self-criticism are not significant factors in differentiating student teacher attitudes toward children or teaching. The scores on the Minnesota Teacher Attitude Inventory, both initially and at the close of the experiment, did not show a significant difference in attitudes toward children or teaching which would indicate attitudes had become relatively stable prior to undertaking student teaching.

2. Students prefer self-observation (listening) as an instructional technique and they prefer visual elements over vocal elements only. Appendix "B" gives a term-by-term response, unchanged in any way, of the

student teachers in the experiment and their reactions to the general availability of recall and recreating experiences during their student teaching experience. It may be that the traditional place of self-criticism and self-evaluation in a teacher preparation program was the effective agent involved in the order of responses to the opportunity to observe or hear themselves. However, if student satisfaction is an objective in the student teaching program of teacher training, more direct self analysis and critique would seem mandatory for institutions engaged in teacher training.

3. There is sufficient evidence available to indicate that the student teacher reacts in an overt way to self-observation (listening) situation which, in turn, has a discernible effect on personnel officers of school systems. Higher average salaries, the positive reactions of fellow teachers and personnel officers, favorable changes in dress and behavior and the resulting comments of the student teachers all indicate that there is a force at work which did not emerge from the test instruments used. Since these comments and reactions seemed to be generally favorable, further investigation in this area seems to be necessary.

4. The results of this study were helpful in answering the questions which prompted this experiment in the beginning. In the present state of knowledge regarding the utilization of newer media in a teacher training program, it can be assumed that no violence would be done to the attitudes of students towards student teaching and towards the instructional program preparing them for teaching by the college or university which chooses to take advantage of the efficiencies and instructional uses of newer media for teacher trainees. This would be particularly true if the expected

economies in time and dollars could be devoted to enriching the number and kinds of experiences available to students in the student teaching program.

However, the tentative nature of many of the findings would suggest that further study of the problem is necessary if the instructional program of student teaching is to receive maximum benefit from the technical efficiencies and possibilities of newer media utilization.

A. Although the self-analysis hypothesis was not substantiated in this study, no attempt was made to prepare and standardize a self-analysis measuring instrument. Further studies might well involve themselves in such a developmental aspect.

B. The essential similarities of self-analysis ratings on measuring instruments used raises questions concerning the value of the student teaching aspect of teacher training in terms of the development and establishment of value scales by the students going through this process. A number of hypotheses concerning the objectives of student teaching may well be tested in a variety of self-evaluations in a structured and non-structured atmosphere to determine the effectiveness of self-criticism and analysis in meeting student teaching objectives.

5. This experiment and the several related studies done at Hunter College, University of Indiana and others have provided some potential solutions to the problem which led to the development of all these studies--the need for new approaches within the universities and colleges for the further development and improvement of the student teaching aspect of teacher training. While a number of further questions emerge from this study and the others, it is possible to conclude that the traditional program can be modified to take advantage of the efficiencies, economies

and possibilities resulting from the use of the newer media to serve certain objectives of the program. However, it has been demonstrated that these techniques and utilizations are no more than teaching tools whose effectiveness differs in use by the attitudes presented by university faculty, and by the full determination and definition of objectives. The possible uses of the newer media for student teacher training may well be to expand and enrich the development of future teachers rather than to replace existing instructional procedures.

APPENDIX A

GLOSSARY FOR CLASSROOM OBSERVATION RECORD-TEACHER CHARACTERISTICS

I. PUPIL BEHAVIORS

1. Apathetic Listless, bored-acting, entered into activities half-heartedly, restless, attention wandered, slow in getting underway.	Alert Appeared anxious to recite and participate, watched teacher attentively worked concentratedly, seemed to respond eagerly, prompt and ready to take part in activities when they begin.
2. Obstructive Rude to one another and/or to teacher, interrupting; demanding attention; disturbing, obstinate; sullen, refusal to participate, quarrelsome; irritable, engaged in name-calling and/or tattling, unprepared.	Responsible Courteous, cooperative, friendly with each other and with teacher, completed assignments without complaining or unhappiness, controlled voices, received help and criticism attentively, asked for help when needed, orderly without specific directions from teacher, prepared.
3. Uncertain Seemed afraid to try; unsure, hesitant; restrained, appeared embarrassed, frequent display of nervous habits, nail-biting, etc., appeared shy and timid, hesitant and/or stammering speech.	Confident Seemed anxious to try new problems or activities, undisturbed by mistakes, volunteered to recite, entered freely into activites, appeared relaxed, spoke with assurance.
4. Dependent Relied on teacher for explicit directions, showed little ability to work things out for selves, unable to proceed when initiative called for, appeared reluctant to take lead or to accept responsibility.	Initiating Volunteered ideas and suggestions, showed resourcefulness, took lead willingly, assumed responsibilities without evasion.

II. TEACHER BEHAVIORS

5. Partial Repeatedly slighted a pupil, corrected or criticized certain pupils repeatedly, repeatedly gave a pupil special advantages, gave most attention to one or a few pupils, showed prejudice (favorable or unfavorable) toward some social, racial, or religious groups, expressed suspicion of a pupil.	Fair Treated all pupils approximately equally, in case of controversy pupil allowed to explain his side, distributed attention to many pupils, rotated leadership impartially, based criticism or praise on actual evidence, not hearsay.

6. Autocratic Told pupils each step to take, intolerant of pupils' ideas, mandatory in giving directions; orders to be obeyed at once, interrupted pupils although their discussion was relevant, always directed rather than participated.	Democratic Guided pupils without being mandatory, exchanged ideas with pupils, encouraged (asked for) pupil opinion, encouraged pupils to make own decisions, entered into activities without domination.
7. Aloof Stiff and formal in relations with pupils, apart; removed from class activity, condescending to pupils, routine and subject matter only concern; pupils as persons ignored, referred to pupil as "this child" or "that child."	Responsive Approachable to all pupils, participated in class activity, responded to reasonable requests and/or questions spoke to pupils as equals, commended effort, gave encouragement, recognized individual differences.
8. Restricted Recognized only academic accomplishments of pupils; no concern for personal problems, completely unsympathetic with a pupil's failure at a task, called attention only to very good or very poor work, was impatient with a pupil.	Understanding Showed awareness of a pupil's personal emotional problems and needs. Was tolerant of error on part of pupil, patient with a pupil beyond ordinary limits of patience, showed what appeared to be sincere sympathy with a pupil's viewpoint.
9. Harsh Hypercritical; fault-finding, cross; curt, depreciated pupil's efforts; was sarcastic, scolded a great deal, lost temper, used threats, permitted pupils to laugh at mistakes of others.	Kindly Went out of way to be pleasant and/or to help pupils; friendly, gave a pupil a deserved compliment, found good things in pupils to call attention to, seemed to show sincere concern for a pupil's personal problem, showed affection without being demonstrative, disengaged self from a pupil without bluntness.
10. Dull Uninteresting, monotonous explanations, assignments provided little or no motivation, failed to provide challenge, lacked animation, failed to capitalize on pupil interests, pedantic, boring, lacked enthusiasm; bored-acting.	Stimulating Highly interesting presentation; got and held attention without being flashy, clever and witty, though not smart-alecky or wisecracking, enthusiastic, animated, assignments challenging, took advantage of pupil interests, brought lesson successfully to a climax, seemed to provoke thinking.

11. Stereotyped Used routine procedures without variation, would not depart from procedure to take advantage of a relevant question or situation, presentation seemed unimaginative, not resourceful in answering questions or providing explanations.	Original Used what seemed to be original and relatively unique devices to aid instruction, tried new materials or methods, seemed imaginative and able to develop presentation around a question or situation, resourceful in answering questions; had many pertinent illustrations available.
12. Apathetic Seemed listless; languid; lacked enthusiasm, seemed bored by pupils, passive in response to pupils, seemed preoccupied, attention seemed to wander, sat in chair most of time; took no active part in class activities.	Alert Appeared buoyant; wide-awake; enthusiastic about activity of the moment, kept constructively busy, gave attention to, and seemed interested in, what was going on in class, prompt to "pick up" class when pupils' attention showed signs of lagging.
13. Unimpressive Untidy or sloppily dressed, inappropriately dressed, drab, colorless, posture and bearing unattractive, possessed distracting personal habits, mumbled; inaudible speech; limited expression; disagreeable tone; poor inflection.	Attractive Clean and neat, well groomed; dress showed good taste, posture and bearing attractive, free from distracting personal plainly audible speech; good expression; agreeable voice tone; good inflection.
14. Evading Avoided responsibility; disinclined to made decisions, "passed the buck" to class to other teachers, etc., left learning to pupil, failing to give adequate help, let a difficult situation get out of control, assignments and directions indefinite, no insistence on either individual or group standards, inattentive with pupils, cursory.	Responsible Assumed responsibility, made decisions as required, conscientious, punctual, painstaking; careful, suggested aids to learning, controlled a difficult situation, gave definite directions, called attention to standards of quality, attentive to class, thorough.
15. Erratic Impulsive; uncontrolled, temperamental, unsteady, course of action easily swayed by circumstances of the moment, inconsistent.	Steady Calm, controlled, maintained progress toward objective, stable, consistent, predictable.

16. Excitable Easily disturbed and upset; flustered by classroom situation, hurried in class activities, spoke rapidly using many words and gestures, was "jumpy", nervous.	Poised Seemed at ease at all times, unruffled by situation that developed in classroom, dignified without being stiff or formal, unhurried in class activities, spoke quietly and slowly, successfully diverted attention from a stress situation in classroom.
17. Uncertain Seemed unsure of self, faltering, hesitant, appeared timid and shy, appeared artificial, disturbed and embarrassed by mistakes and/or criticism.	Confident Seemed sure of self, self-confident in relations with pupils, undisturbed and unembarrassed by mistakes and/or criticism.
18. Disorganized No plan for classwork, unprepared, objectives not apparent; undecided as to next step, wasted time, explanations not to the point, easily distracted from matter at hand.	Systematic Evidence of a planned though flexible procedure, well prepared, careful in planning with pupils, systematic about procedure of class, had anticipated needs, provided reasonable explanations; held discussion together, objectives apparent.
19. Inflexible Rigid in conforming to routine, made no attempt to adapt materials to individual pupils, appeared incapable of modifying explanation or activities to meet particular classroom situations, impatient with interruptions and digressions.	Adaptable Flexible in adapting explanations, individualized materials for pupils as required; adapted activities to pupils, took advantage of pupils' questions to further clarify ideas, met an unusual classroom situation competently.
20. Pessimistic Depressed; unhappy, skeptical, called attention to potential "bad", expressed hopelessness of "education today", the school system, or fellow educators, noted mistakes; ignored good points, frowned a great deal; had unpleasant facial expression.	Optimistic Cheerful; good-natured, genial, joked with pupils on occasion, emphasized potential "good", looked on bright side; spoke optimistically of the future, called attention to good points; emphasized the positive.
21. Immature Appeared naive in approach to classroom situations, self-pitying; complaining; demanding, boastful; conceited.	Integrated Maintained class as center of activity; kept self out of spotlight; referred to class's activities, not own, emotionally well controlled.

22. Narrow	Broad
Presentation strongly suggested limited background in subject or material; lack of scholarship, did not depart from test, failed to enrich discussions with illustrations from related areas. Showed little evidence of breadth of cultural background in such areas as science, arts, literature and history, answers to pupils' questions incomplete or inaccurate, noncritical approach to subject.	Presentation suggested good background in subject; good scholarship suggested, drew examples and explanations from various sources and related fields, showed evidence of broad cultural background in science, art, literature, history, etc., gave satisfying, complete, and accurate answers to questions, was constructively critical in approach to subject matter.

APPENDIX B

THE FOLLOWING COMMENTS WERE TRANSCRIBED EXACTLY AS THEY APPEARED ON THE REACTION SHEETS. NO CHANGES OF ANY KIND WERE MADE.

Winter Term 1960

The one that was good wasn't too helpful because my suporvising teacher and I had desided on where the problems were. It did point out a couple of things and really make me awear of them.

This was helpful to me. It could have been better. If I had had a choice of when it was on , it would have been a help to me. The children were "testing" me out, and I couldn't tell at first if they could hear me, or if it was a discipline thing. If I could have known from the start how my voice was carrying it would have helped much. This was helpful for diction-volume-expression. My supervising teacher did not discuss the tapes with me very much. The first one - only much later - the second one not at all, and the third one only a quick comment. The help I got, was from my own analysis. I would like to have had more tapes.

The experiment seems to be worthy of the time and energy spent on it, but the technical aspects made the experiment rather annoying. I have gotten absolutely nothing from the experiment.

I feel that you should not start taping the second day when we are not prepared. This tape was useless.

The people who came to record were not very discreet about the experiment and I always knew when we were going to be taped.

I did not think this experiment was worthwhile. There were too many technical difficulties to overcome. As far as helping me in my teaching I feel that it was a complete waste of time and I did not gain a thing from it. I feel that the best way to evaluate teaching is to have the supervising teacner evaluate the lesson immediately after it has been taught.

I didn't mind the experiment at all - however, if it came to a choice between the discussions with the supervising teacher or the tape, I'd take the talks with the teacher. However, I benefited from the tapes - expecially in the reactions of the children. It was most obvious on the tape. I mean that I missed much of their reaction while I was teaching.

I think the main fault with this experiment was lack of planning - (mostly in the area of human nature). All the things involved were not considred and the none professional people should have been better briefed - including the secretary - on his or her position or responsibility in this experiment. Talking about the experiment and the participants in a personal matter, should have been taboo. Many of (and I hope most of) the rough areas will be cleared up after this term, if the "talk" I have heard is accurate.

I do feel very fortunate to have been a part of this experiment, tho, despite the unpleasantness from time to time. I feel that anyone taking part in it after this initial breaking-in period will be most fortunate.

I felt the experiment was not thoroughly planned before it was started, therefore, there was a lot of confusion and mistakes made that could and should have been avoided.

I feel it did help me evaluate myself more clearly. It was quite satisfying to pick out a fault to work on after watching a movie and then to see it had improved in the next.

If this was to be used in future years I think it would be helpful to have more films taken so you could have two or three films taken throughout the term of your teaching in about 4 different area. You then could see your improvement in each area and you could see which areas you were strong or weak in.

I don't think the experiment made much difference in our ability to evaluate my teaching.

I was rather dissappointed at first when I saw the large cameras which were brought into the classroom. They however did not disturb our class, we were very busy in fact the children were too "quiet". The cameras did not bother me what so ever. I do not feel that these films were a great help. The first one had no sound because of noise and the others came too late. I believe they should be sent back within a couple of days so that the day will be fresh in ones mind. With a number of improvements these could be very worthwhile.

Personally found it unbeneficial most things brought out in films were weakness' that I was already aware of. Think maybe if the same situation - say a reading class had been put on film at three different times during the term to be compared would have been more beneficial - as it was all three films were three different situations so actually had no basis for comparison.

I felt that this project was a general waste of my time and your money. I enjoyed seeing myself on film and I could see the improvement I made in handling the class but all 3 films were in different situations and there was no basis for comparison other than mentioned above. They actually showed me nothing that I didn't already know or that my supervising teacher hadn't already pointed out to me. The time it took to prepare for a go over was definately not worth what I got out of the films.

I feel that I was very fortunate to be able to take part in this experiment. I believe that after viewing my films I was actually able to see my strong and weak points -- this being self evident. I'd like to say that the sound was inadequate at times, and I believe you are already improving that aspect of this program. It would be best if the camera men could tell you how much of the area will be covered when taping the films as at times one may not be in sight of the film but just heard.

If there was some possible way to control the lighting it would be more beneficial and if at all possible, close-ups would help at times to see the board work, etc.

I feel that the experiment was extremely worth while as I personally was able to observe many personal habits that I in all probability would never have corrected.

I was able to observe very distinct improvements in my teaching methods and also in my composure and discipline methods.

Two areas in which I feel that improvement could be made are: First of all I feel that it was often too obvious as to when the cameras were on and when you were "safe" so to speak. I feel that it would be more valuable as a true recording or film if you were completely oblivious to when the tape or camera was on. I personally would have liked to see some real candids of recess dismissal, morning entrance and the comotion times of the day.

Secondly, I was slightly dissappointed in the sound reception of the children's voices. I understand however that this will be overcome in the near future.

I found everyone connected with the experiment to be the very nicest type of people and consider myself very lucky to have participated in it.

On the whole, I feel a bit disappointed in the tape. Due to technical difficulties and noises I actually didn't gain too much. The length was too long because the 1/2 hour it took to listen I felt could have been used in a much better way. It used for a lecture it was better, but in classroom participation - there wasn't that much to be gained.

I feel that the experiment was most worthwhile. I gained much from my films. It was an excellent means and opportunity for evaluation for my supervising teacher and myself. Those evaluations were the most complete and thorough of any of our talks or conferences. When I saw the films, I discovered many things that I wasn't conscious of during the teaching situation. These discoveries helped me to a great extent. When I met the situation again, I was able to apply my realization of the matter and improve on it.

Spring 1960

The three voice tape recordings that I was engaged in were of some substantial benefit. My enunciation, diction, voice quality, communication with the group, and disciplinary problems were well displayed on the tapes. I was pleased with the fine organization and technical acuteness of the tapes and the staff that worked with it. I felt that my tapes were well timed during the term to afford me a good example of improvement.

I realize that this program is expensive. But, I feel that it would have been of even a more extensive aid if we could have been taped for one complete day. If we had, the organization of our work, the integration of our material, and the techniques we use in moving from subject to subject would have been better displayed and would have been happily accepted.

I've wondered greatly about the general value of the experiment - that is the overall value to future student teaching programs.

I've had a positive attitude toward the project, probably due to the method with which it was introduced. The orientation of the student teachers was very well handled. I had no fear of the project or reluctance to take part.

Personal value--what I as an individual gained from the project--I'm not sure about of course from the first tape I could definitely hear and recognize errors of inflection, expression and those due to nervousness. The subsequent tapes showed much improvement which was gratifying - but I didn't need the tapes to know that I was improving. While they were of some value I wonder if their value was enough or would be great enough for future student teachers to justify their cost.

While I was glad for the personal help I received from seeing myself on film, I can't help wondering if that is enough to merit the expense that the program requires. The technical aspects of the experiment were so poor that my supervising teacher was unable to give criticism at all. Even if she had, I wonder if there would have been anything on the film that she would not have been able to tell me from her own observation. I personally enjoyed the experience.

I considered the TV tape a waste of time and money as far as helping me become a better teacher. By the time the film got back and we had a chance to see it, both of us had nearly forgotten the lesson. I found it more valuable to discuss the lesson after teaching it.

Another thing, the voice pick-up was terrible. All we could hear on the first film was the noise on the playground. The second one consisted of me doing all of the talking because the children's answers could not be heard.

It was helpful to the extent of seeing what the children did during the lessons.

This experiment might be more helpful if the equipment was better. But I cannot see where it helped me.

Being recorded helped me to see the areas of teaching in which I was weak. As far as recall to specific instances was concerned it was of little benefit as I retained this information myself without having to hear it again. Through recording, self evaluation and consequent self improvement was easier for me to realize.

I think this experiment will benefit both those involved in actual recording and those using the recordings and TV as teaching aids or what ever. It should throw some light on the true classroom picture rather than the ideal theoretical situation so often presented to pupils in pre-teaching course work.

I enjoyed being recording and generally I think it helped me in my experience of student teaching.

The first recording was taken during my very first day in the classroom. I do not think this was a good idea at all. Not only was I very nervous (being the first day) but the recording essentially brought out this fact well. I was reading a story and I think something more constructive should have been on it. The second recording was much better, and I could easily noticed my ease with the group had improved a great deal. The third time it was better yet.

I think the recording program is good and should be continued. If the children could be heard better it would be a great improvement.

I have little reaction to the experiment as it failed to make much of a difference in my teaching ability. I am interested in learning the results. I did not mind participating. I would have preferred the film as I feel tapes give only half the picture.

First of all, I fail to see how any differences which are found in the teaching effectiveness of the three groups in six months could possibly be attributed to such a small part of the student teaching experience as TV or tape evaluation, if it is possible to evaluate such a thing as "teaching effectiveness". Of course I realize that this is only a hypothesis, that this whole thing is an experiment and, furthermore, that I possibly misunderstand what is trying to be done.

Practically, I felt that situation created by the presence of the TV and recording equipment was so unnatural, especially for the children, that three films which we studied showed the three most atypical situations of the whole ten weeks. Children would jump up before the cameras, pretend to be giving T.V. shows, argue about whose desk was going to be in the most advantagous position for filming, request that their seats be moved into camera range, argue that it wasn't fair for some people to be on T.V. and not others, yell into the mikes, hold radios up to them to disturb the technicians, and "all manner of unseemly things." All this in spite of the fact that my supervising teacher had explained the whole situation, I felt, very adequately. Of course, some students were entirely oblivious to the whole thing, but it upset enough of them to create an unusual setting. Perhaps part of this was due to the fact that the class had been filmed earlier in the year for a Scott-Foresman movie which had been shown for large groups several times, and the children were made very aware of their roles as "movie stars."

Technically, the films were very well done for the most part. On one, however, someone cut in on the short wave and there was about 10 minutes of music in the middle of the film. But, of course, this was an unavoidable "bug" in the recording.

I also question whether the camera catches enough extra for the student teacher and supervising teacher to evaluate later to justify the time and expense of recording - the children's voices are left out, for the most part, and much of what goes on is out of camera range, either behind or to the side. Other than for a few minor points - small gestures, or mannerisms - which the films made me aware of - I don't think I gained much in addition to what my supervising teacher could have pointed out to me anyway.

It really didn't bother me too much. The first time I was rather nervous about it. But afterwards it didn't bother me, it really wasn't difficult.

I feel the tapes could have helped to some extent - however my supervising teacher was not very interested, and didn't help very much on evaluating my tapes. She said, "the only reason I'm having a student teacher is beacuse of the experiment - she didn't care to have a student teacher.

I really enjoyed working with the TV. It was most interesting. I really feel that if you are at all cognizant you will realize your mistakes with our having a movie of them. I know a lot I have done wrong right after I have done it.

It did not bother me in the least to have the TV in my room. The children seemed to enjoy it also.

I do not feel that it helped me in any way at the present, but perhaps it was because my supervising teacher never watched it with me.

I enjoyed seeing the film - it was interesting to see how I looked and acted. Now I know how I appeared to the children.

As far as actually helping me improve my teaching I don't think it was too valuable. I caught some little mannerisms such as saying "yeah" instead of "yes" but this was about the only thing I was conscious of changing as a direct result of the film. One other area in which the film may have helped is that I was pleased to notice I did appear poised and held the attention of the group which helped my self-confidence. As far as being a "talking point" for my supervising teacher and myself it was in a small way but I feel these were things we would have discussed without the film.

The first 2 films did benefit me but the idea of the last one was not only poor but a pain in the neck.

I personally think if you are going to have an experiment, the TV is the best. You can see and hear yourself and where the voice may have failed, you can still see which helps you decided what is going on.

I don't believe it was a waste of time but beneficial in some ways. It was a bother in others as it put a pressure on us and the children.

It was interesting participating in the experiment but just one more thing to worry about.

If it will benefit other student teachers, I think it was well worth it.

I enjoyed being in this experiment. It was most interesting and in a way beneficial. The only part of this "tape experiment" that I didn't care for was the physical inconvenience it caused because of the wire and microphone. I found that on days I was to record, active activities were "curtailed" for convenience.

I feel that this was a great help to me in locating my poor points in speech and in teaching specific ways to this class. It gave me insight into discipline problems that arouse in parts of the classroom that while teaching I was not aware of. Specific points of faulty teaching were discussed between an experienced person and myself. This tended to bring out constructive criticism of teaching methods that were being used by me that were both poor and good. This discussion I felt lead me to think in positive terms of self-improvement in working with the children. Both hearing and seeing myself perform with the children gave me more confidence in working out a more detailed sketch of factors involved with methods and discipline problems.

Fall 1960

It was a lot of work but enjoyable. Looking back I wonder how I made it and still got things done but I also think it was a wonderful experience. I do wonder though, just for my own knowledge, if the other groups were pressed as much as we were. I'd do it again but I still don't feel the explanation of what the actual use of the experiement is for was adequate.

The tapes could have been much more helpful it they had been returned immediately after they had been made. This way, the day the tape was made would have been fresh in your mind and self-evaluation would have been more worthwhile.

I enjoyed listening to the tapes and did learn alot about my teaching and means of expression. They helped me to improve my speaking ability and also to stop repeating my questions to the children.

The tapes would have been more helpful if they hadn't had so much static in them.

As far as reaction goes I can't see as there was anything to react to. The children, of course, asked many questions about the belt and mike and they wanted to know why they could not hear the tapes.

It was interesting to hear the tapes after they were all done. However we had little chance to work them in after school. One of them we had a month before we could get a chance to listen to it.

I enjoyed the tape and it was a worthwhile experience. It gave me the chance to actually hear my voice and method of teaching. However, I do think the television would have been more effective. Whereas I could have seen myself in action as well as having heard myself.

I had two bad reactions to the experiment also.

1. I felt that the operators could have been more efficient. At all three of my tapings they were late and missed all three openings of my lessons. I feel that as long as I was willing to co-operate, the operators could have been more co-operative and made my taping more effective. The tape was hardly worth listening too with the motivation and beginning of the lesson being missed.

2. I felt that our recordings could have been made available to us sooner than they were. At one time it was almost 1 1/2 weeks after the taping that I reviewed my tape. By that time I had almost forgotten my lesson. It would have meant more to me to have had the tape within the next day or two.

I feel that our choice of lessons shouldn't have been limited and it was silly to keep the experiment a secret. We always knew when our taping took place because of the preparation of a special lesson.

There was some value to the film but not enough to warrant the cost of materials and time involved to do so. If the film could have been shown to the pupils as well it may have been of greater value in helping the children see themselves and their own behavior. I felt that there was not sufficient helping experience supplied by the films. Perhaps for a person with more interest in correcting mechanical difficulties it may be of more help.

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1. A valuable aid to myself in student teaching.
2. An unnecessary trouble and bother for the principal and supervising teacher due to the poor tapes and projectors.
3. Would be better if didn't have such large cameras; if didn't have to move classroom furniture around, etc.
4. Why test something that is so obviously useful in the first place?

Using the tapes did not bother me. I forgot that I had the harness on when I would work with the children. I don't see how these tapes will be of any value to you. Unless you were in the classroom at the time we were being taped you wouldn't know the circumstances that led up to or followed the taping. I think this is very important. On one tape I was using a visual aide, unless you saw this aide the tape would be useless.

I will be interested in knowing how you use these tapes.

I certainly feel that many things have to be changed before you could call this project effective. I cannot understand why a better grade of film was not used. It got so that my supervising teacher and I almost dreaded watching the kinescope because the darn film broke so many times. I don't think I got the full value of these films because of this.

The microphones were too sensitive and picked up all the scuffling of feet, rattling of papers. If an outsider looked at these films, he would think he was watching some kind of zoo animals! !

We were told the cameras were very small and would go unnoticed. My children were like animals when the cameras were in the room.

I had a father come up to me after our group conference. He works out at the T.V. station. He started in by telling me about some of the student teachers he had seen on film and what a rotten job they did. He hoped I would do better - This left me cold ! !

I did benefit quite a bit from these films. I wished Dr. Tintera would have been here today, so we could have found out a little more of what happens to them now.

I feel this experiment was of value to me because I could build upon criticism (of self and by supervisor) during the term of student teaching.

It does seem to me the advantages outweigh the disadvantages; however I do feel the technical aspect in taping of the films could have been far improved. The film, for instance should have been of the highest quality since this experiment was to be later used in helping teacher training programs etc. This very aspect was a "headache" not so much to me but to the teachers and principal who were responsible to us. They wanted us to see the film before taping another and in some instances this was not permitted due to faulty machine, oversized films, etc.

I feel the films were of value in my student teaching but I did not see my second film until after the third one was made. I think this hindered the purpose of the experiment. When the films were returned for the supervising teacher and me to look at, they kept jumping off the spockets and when we finally did get it to work the film broke, we were so exasperated by the time we got to see the film we didn't receive the full benefit of them. If they were more carefully made I feel they are of great value. My second film had no voice and I think this could have been remedied by the technicians.

I felt that the experiment would have been more beneficial if the childrens voices could have been recorded also. Without hearing them I had no idea of how I had handled a given situation or if my lesson or instructions had been understood.

I enjoyed the films and felt that they were a great help in self-evaluation, far above what would be possible in the controll group method.

I think that the tapes made were very useful and made me aware of so many aspects I could not have evaluated otherwise. I do not think they were really representative of my teaching as a whole because of my teaching as a whole because I could always tell when they were and I know this affected my teaching during the time. I think though that if any student teacher could just hear one tape of themself, it would help.

My critic teacher put too much emphasis on my continually talking and I was so conscious that this is what she wanted, that I do not feel I did as well as if the situation had been natural.

2

I'm not sure you have learned very much from this experiment, especially considering the time, money and effort involved. It may be that it is my lack of understanding but I fail to understand how you expect to draw even inferential correlations from the test data. I don't believe a good teacher will have any set list of traits or characteristics that you can evaluate by this method.

The chief advantage of taping, I feel, was that you were able to hear yourself conducting a lesson - it took you out of the role of participant and allowed you to be an observer - this could be done no other way except through the media of TV or tape. It enabled me to "catch" many little things I was doing both right and wrong, and correct them. The taping also acted as an incentive for me to prepare an extra good lesson.

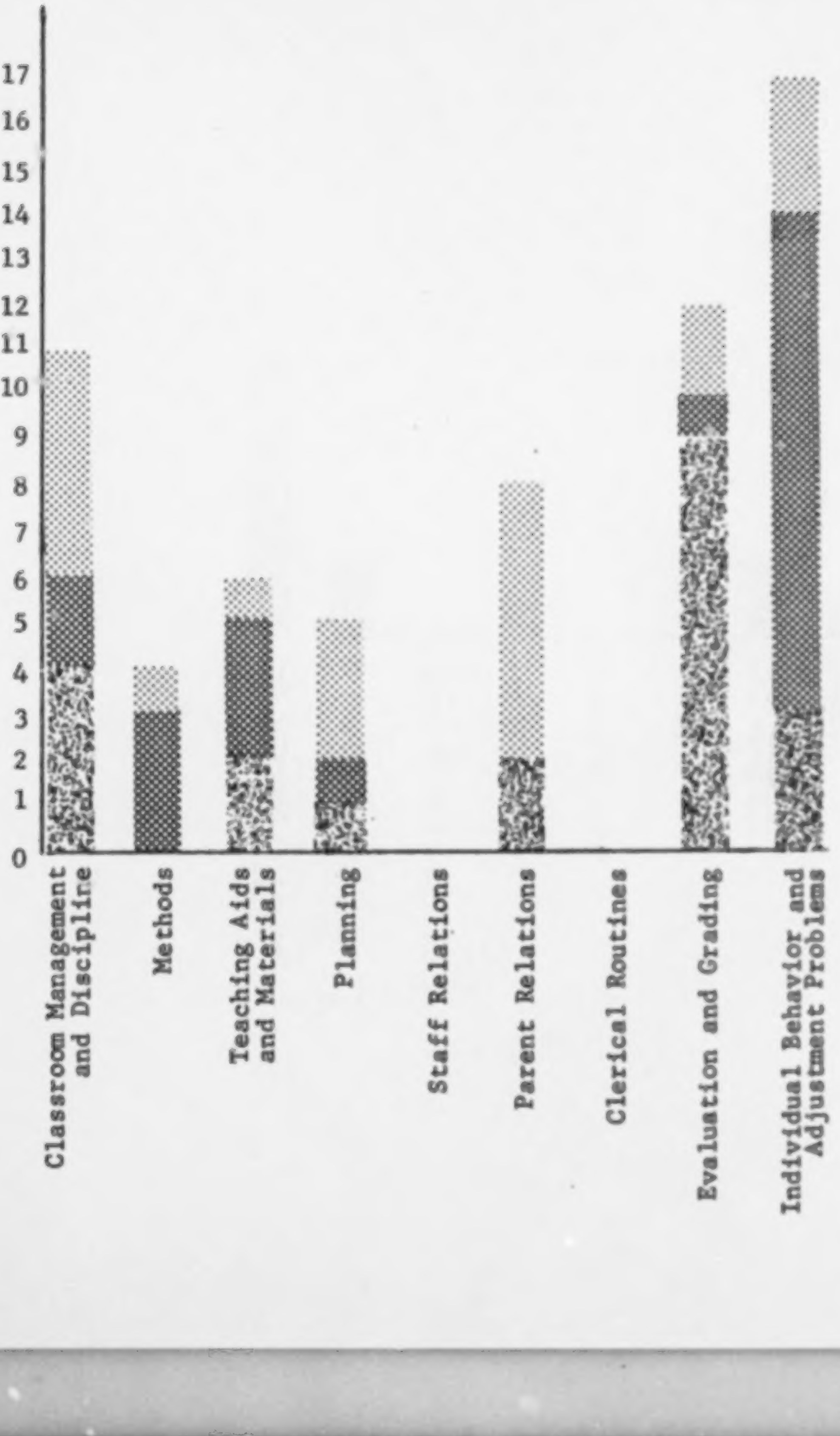
The drawbacks are: tape places a definite limitation on the type of lesson you prepare. A particular lesson might be excellent apart from the tape but on tape it would be decidely inferior. Taping demands an auditory lesson - visual experiences are lessened. The presence of the microphone, wire, etc. and the exphasis upon being quiet, creates an unreal environment in regards to the children; this did seem to diminish as they became familiar with the procedure however. I feel that the operators have a definite responsibility to be on time for the tapings. It can be a terrible inconvenience to everyone concerned when the schedule is interrupted. I also feel that the element of "secrecy" is silly since everyone knows what day it is and the only thing that is secret is the time. I feel the time should be known so that we can be better prepared.

APPENDIX C

1st Choice - ▨
2nd Choice - ▩
3rd Choice - ░

MITZEL-MEDLEY TEST
PART A

First Testing - Spring 1960
Total Students - 21



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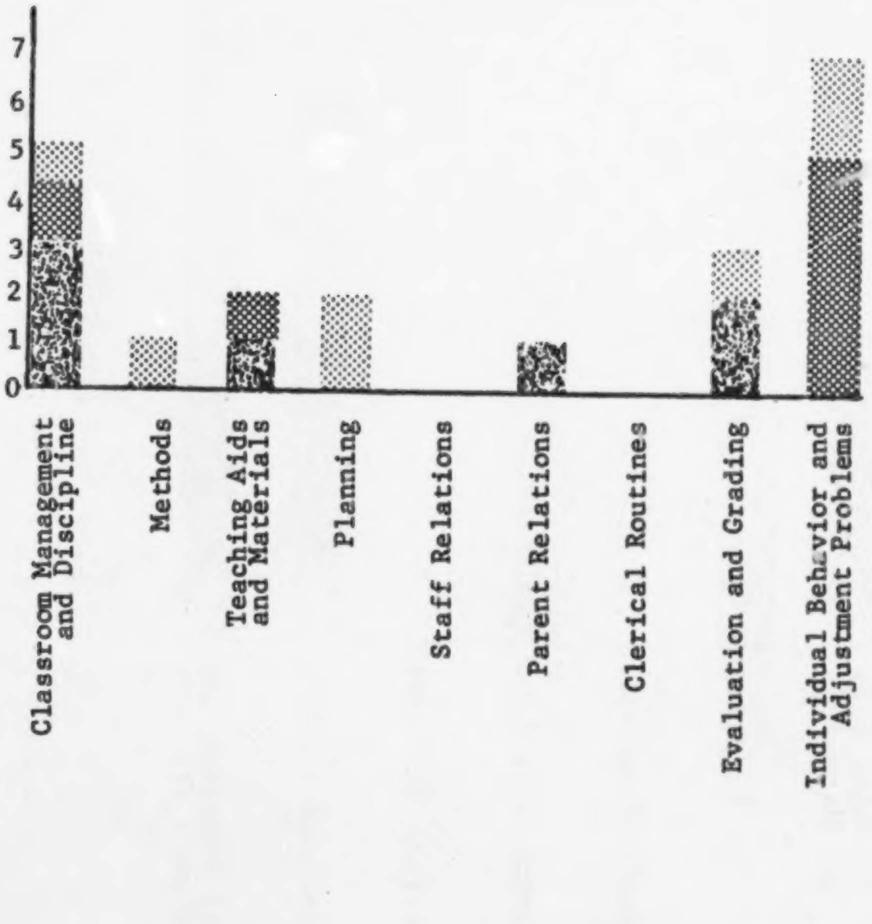
MITZEL-MEDLEY TEST
PART A

First Testing - Spring 1960
Television Students - 7



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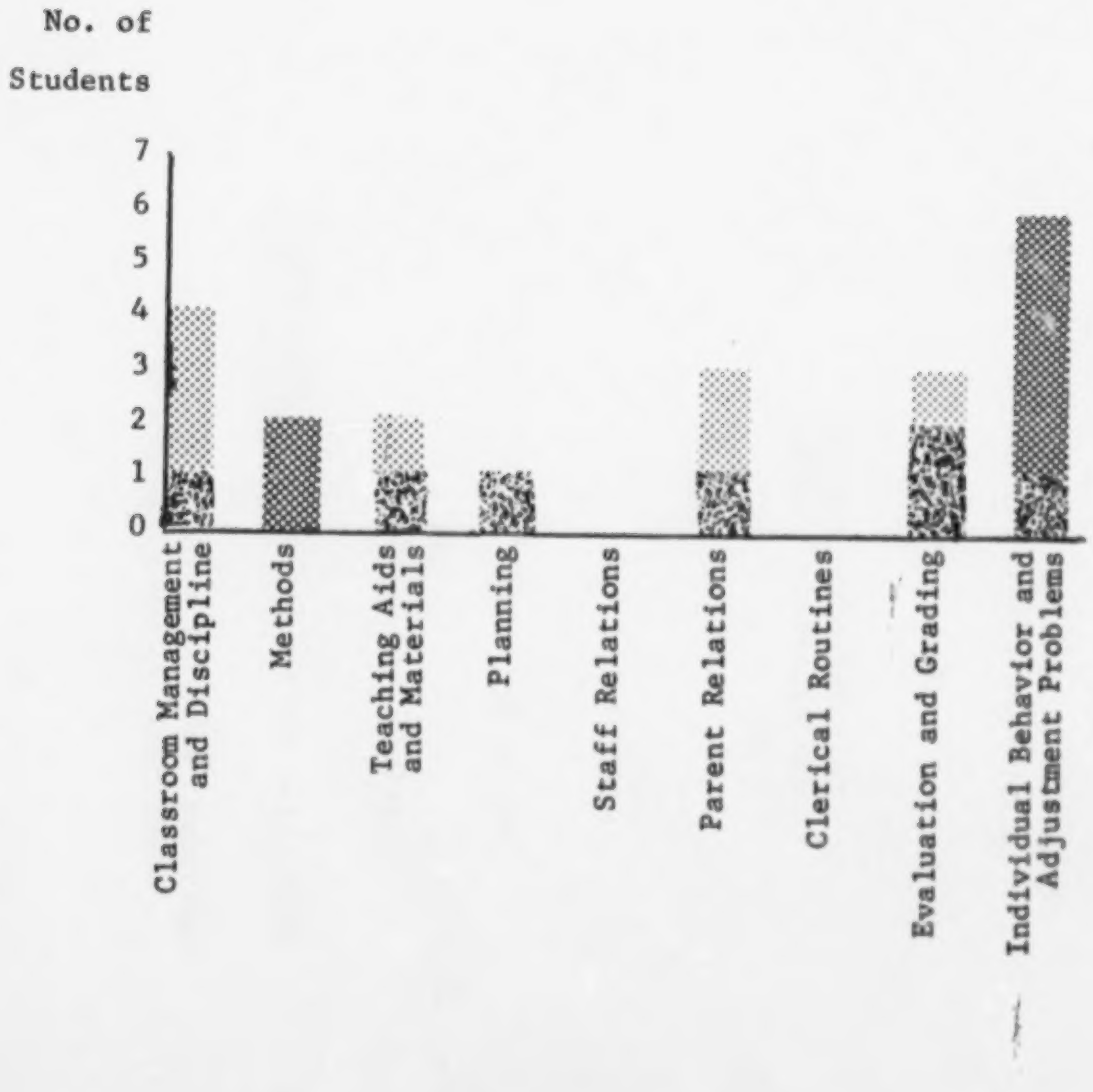
MITZEL-MEDLEY TEST
Part A

First Testing - Spring 1960
Tape Students - 7



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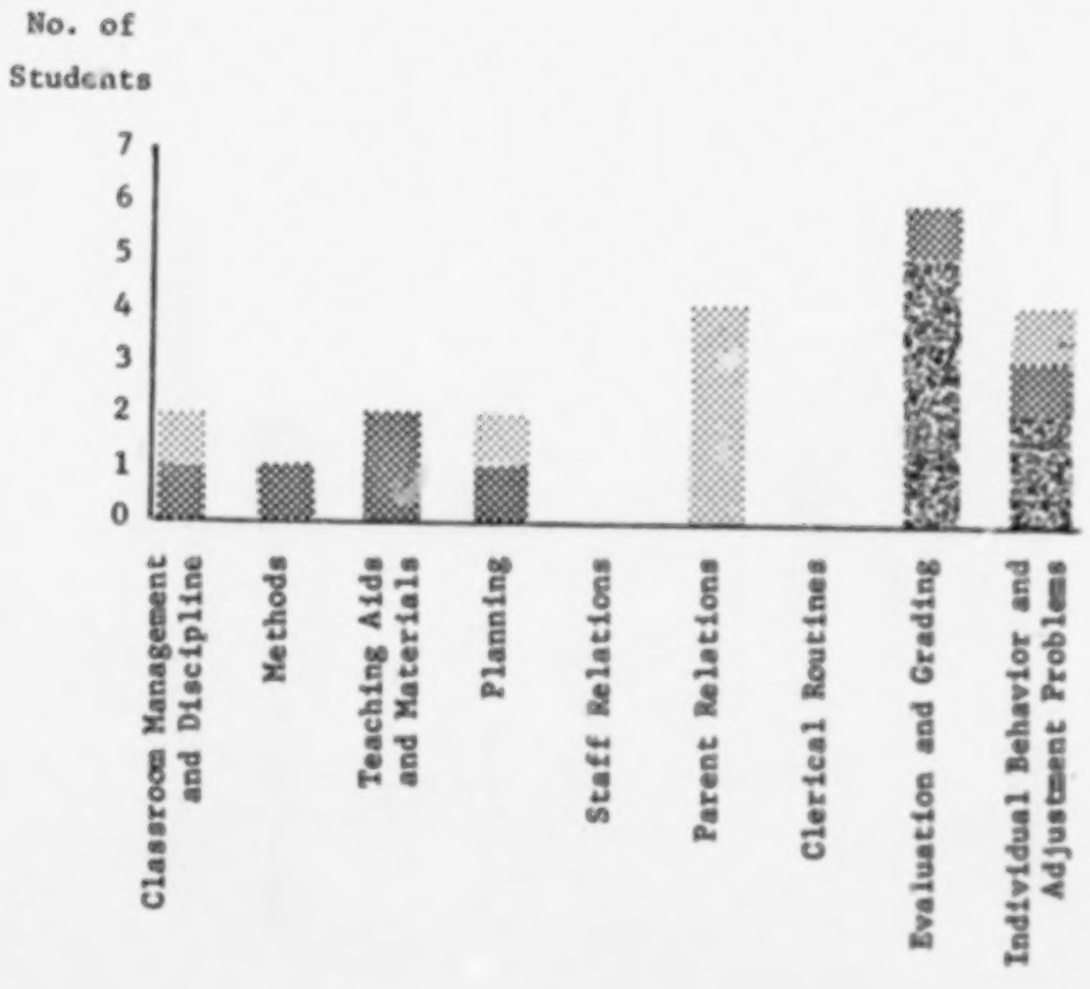
3rd Choice - ░

MITZEL-MEDLEY TEST
Part A

First Testing - Spring 1960
Control Students - 7



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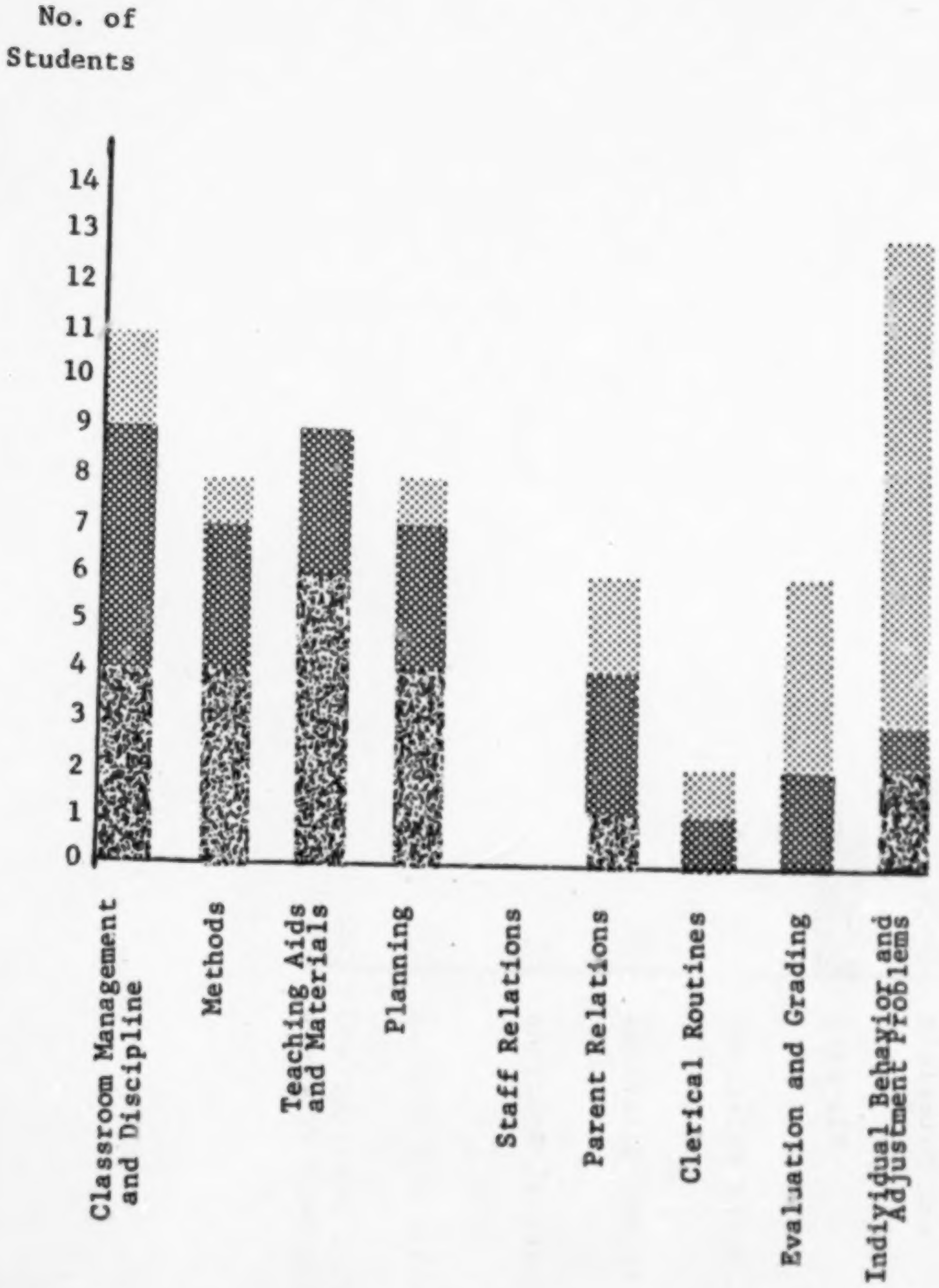
MITZEL-MEDLEY TEST
part A

First Testing - Fall 1960
Students - 21



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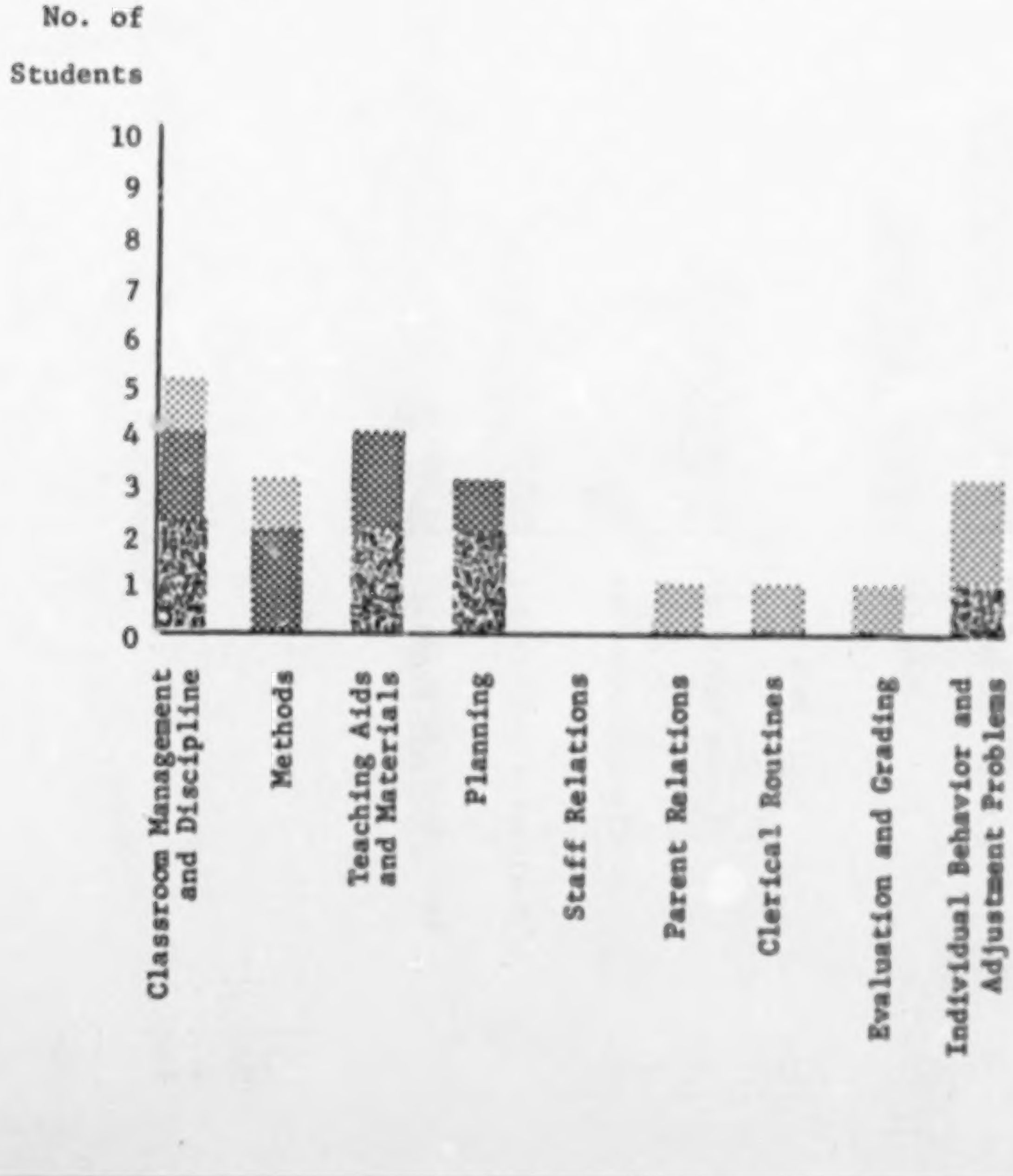
MITZEL-MEDLEY TEST
Part A

First Testing - Fall 1960
Television Students - 7



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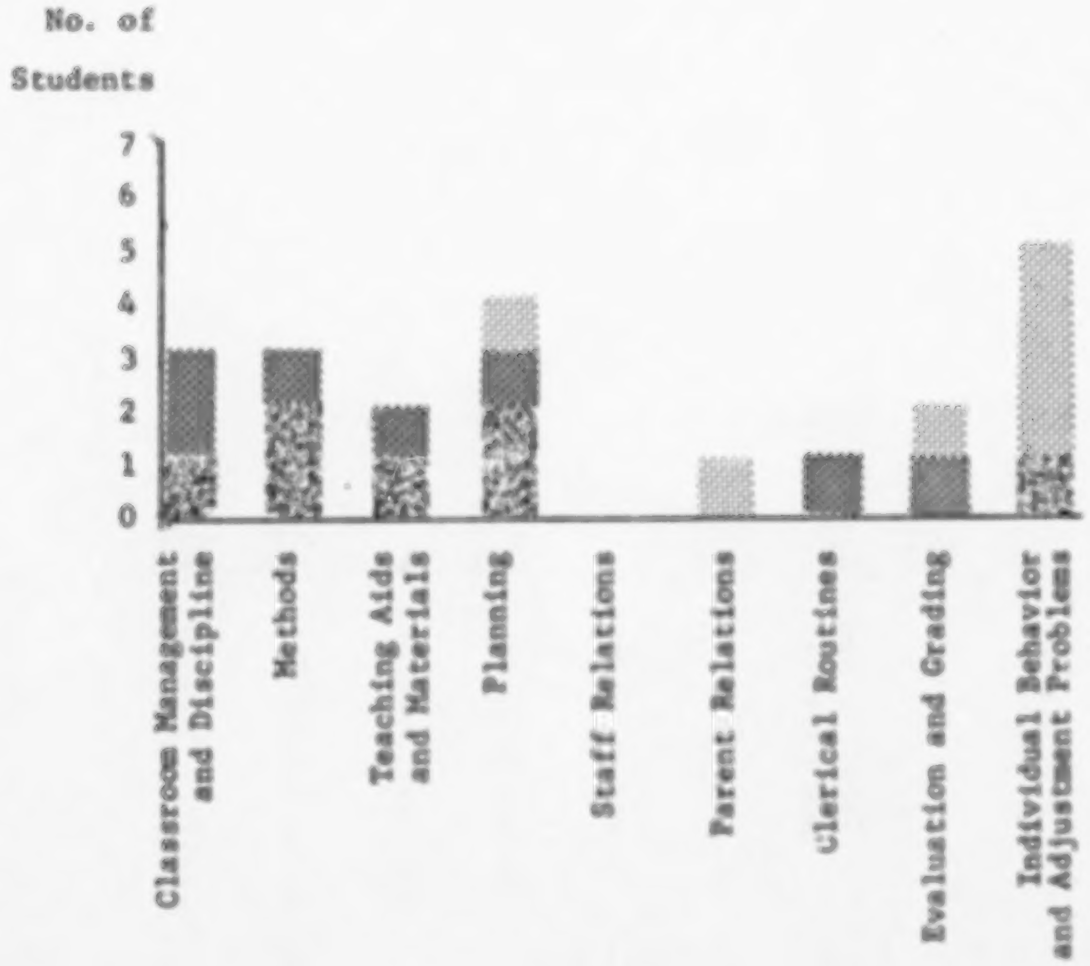
MITZEL-MEDLEY TEST
Part A

First Testing - Fall 1960
Tape Students - 7



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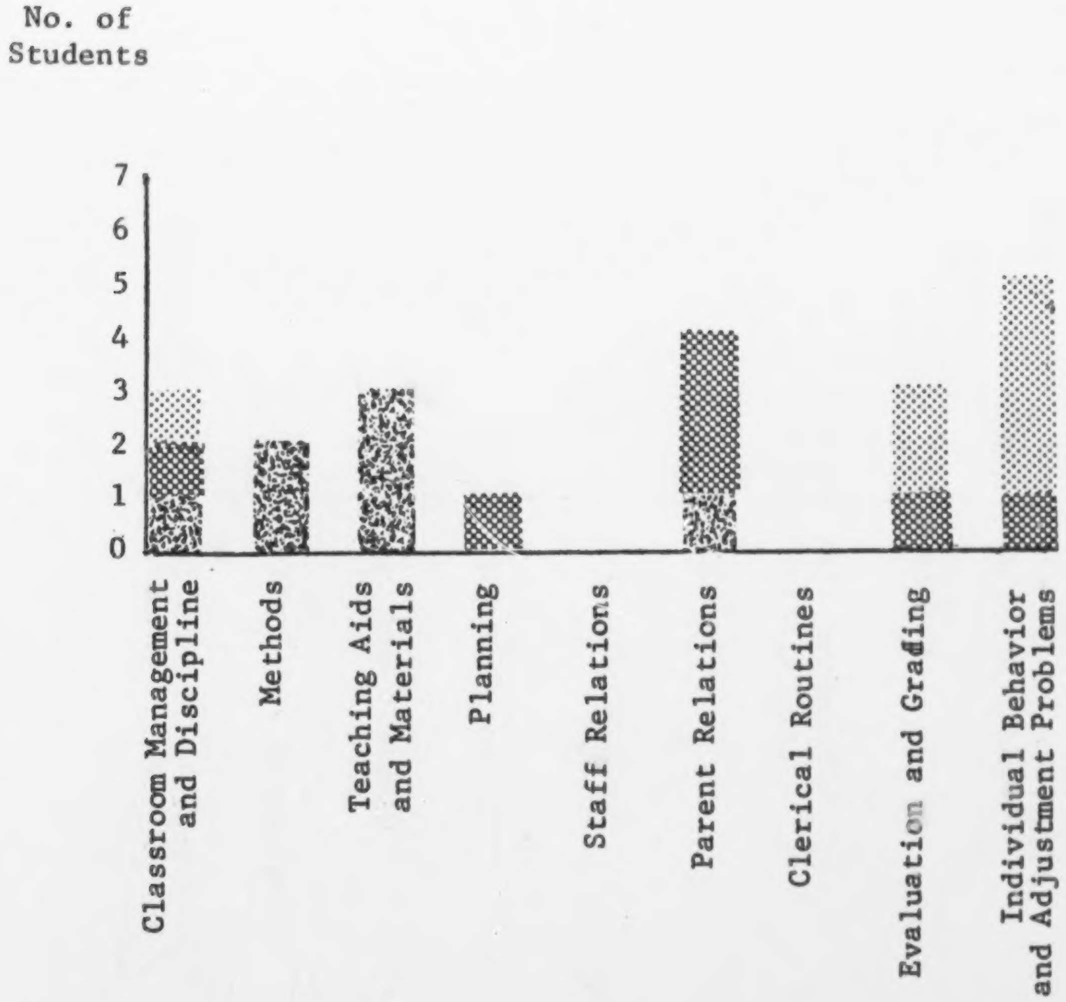
MITZEL-MEDLEY TEST
Part A
First Testing - Fall 1960
Control Students - 7



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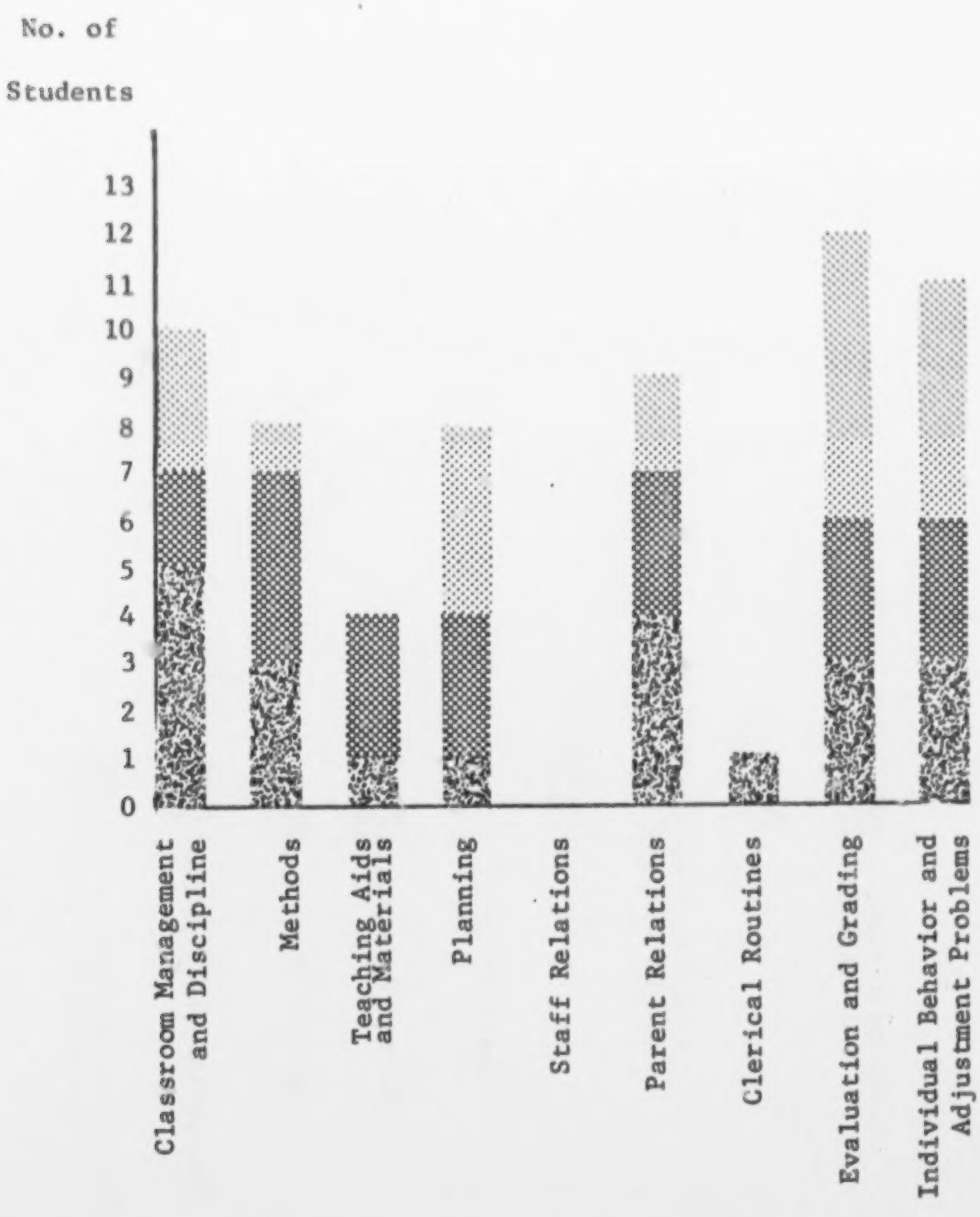
MITZEL-MEDLEY TEST
Part A

First Testing - Winter 1960

Total Students Tested 21



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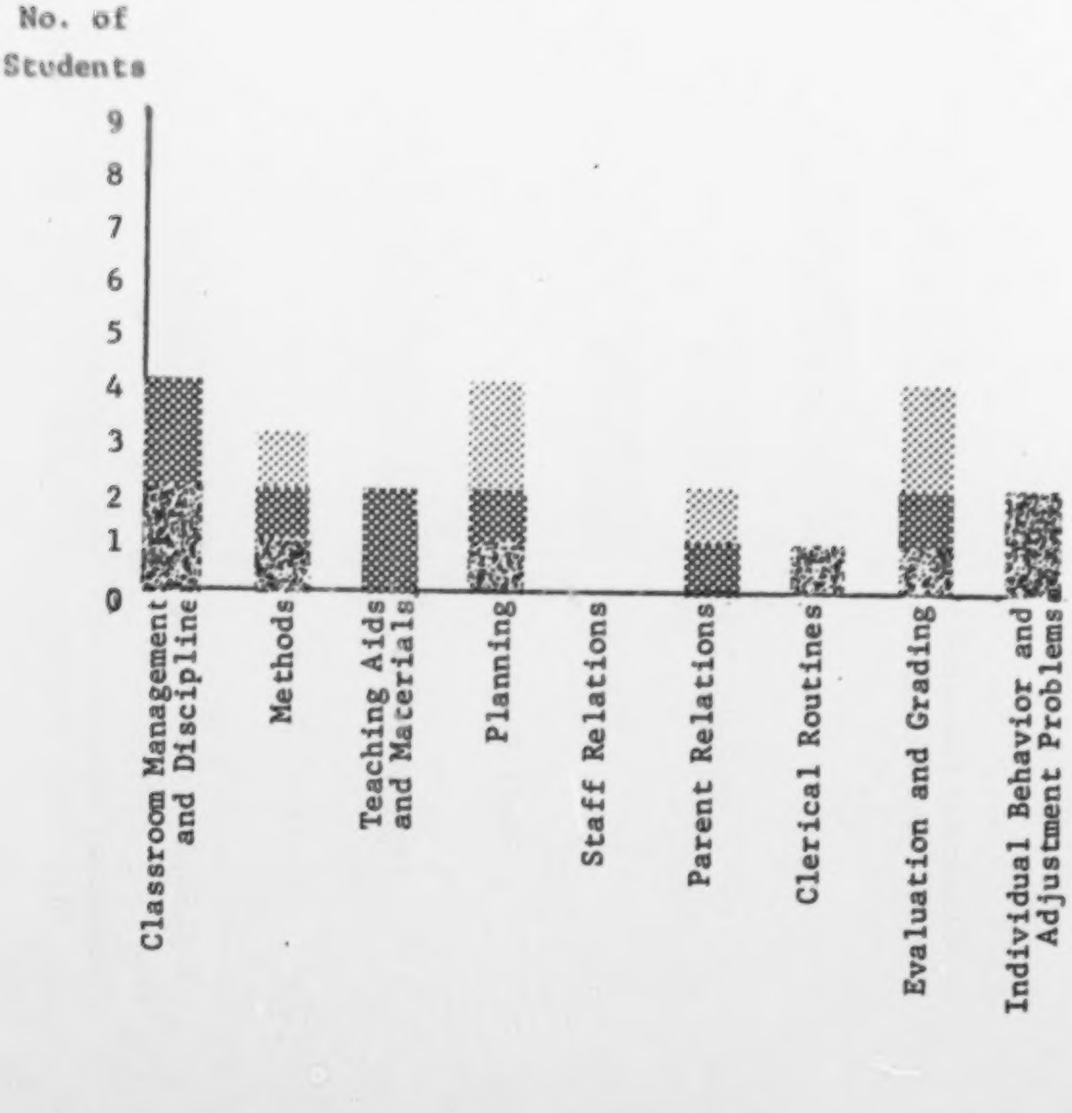
MITZEL-MEDLEY TEST
PART A

First Testing - Winter 1960
Television Students - 8



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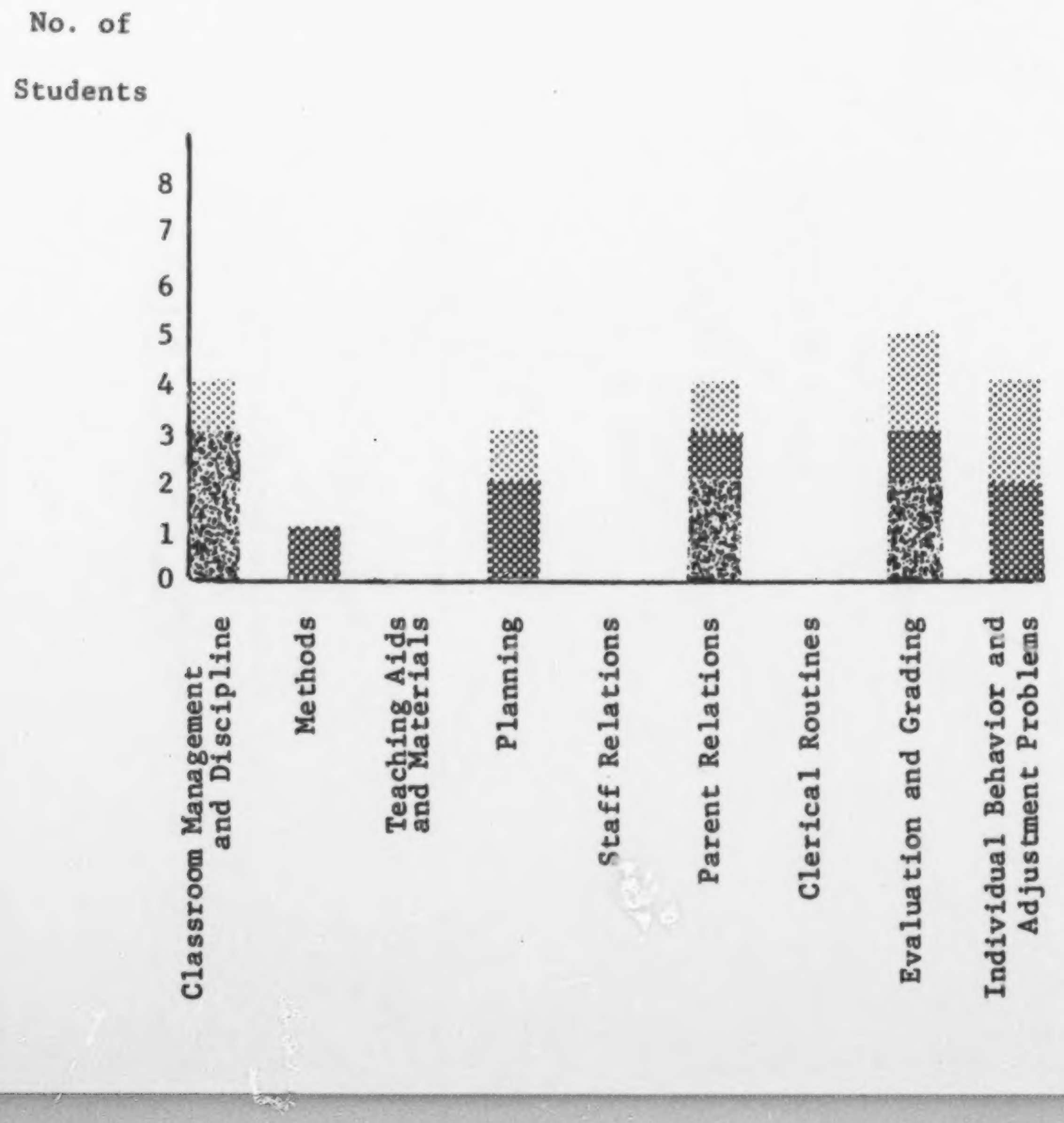
MITZEL-MEDLEY TEST
PART A

First Testing - Winter 1960

Tape Students - 7



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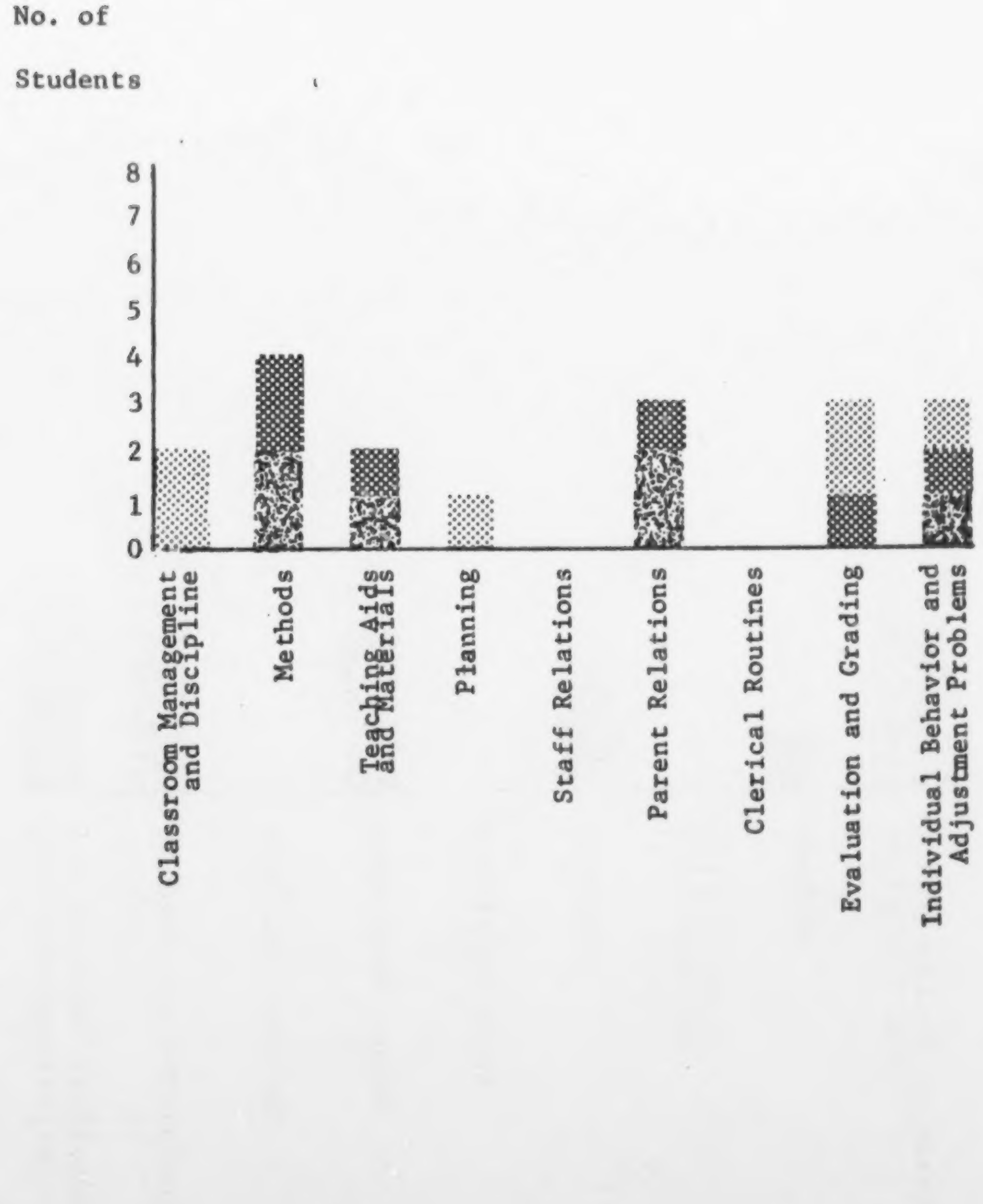
3rd choice - ▒

MITZEL-MEDLEY TEST
PART A

First Testing - Winter 1960
Control Students - 6



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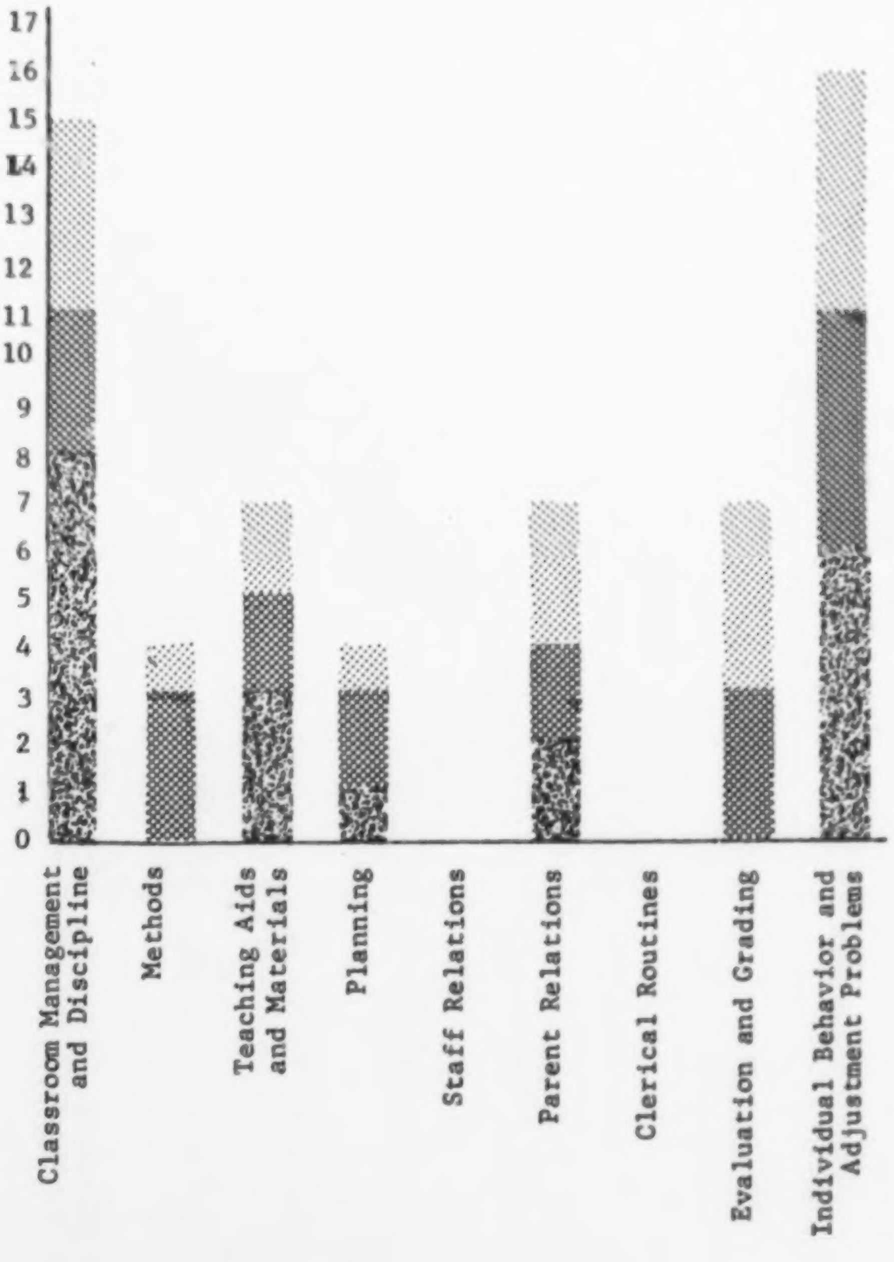
3rd Choice - ░

MITZEL-MEDLEY TEST
PART A

Second Testing - Spring 1960
Total Students - 20



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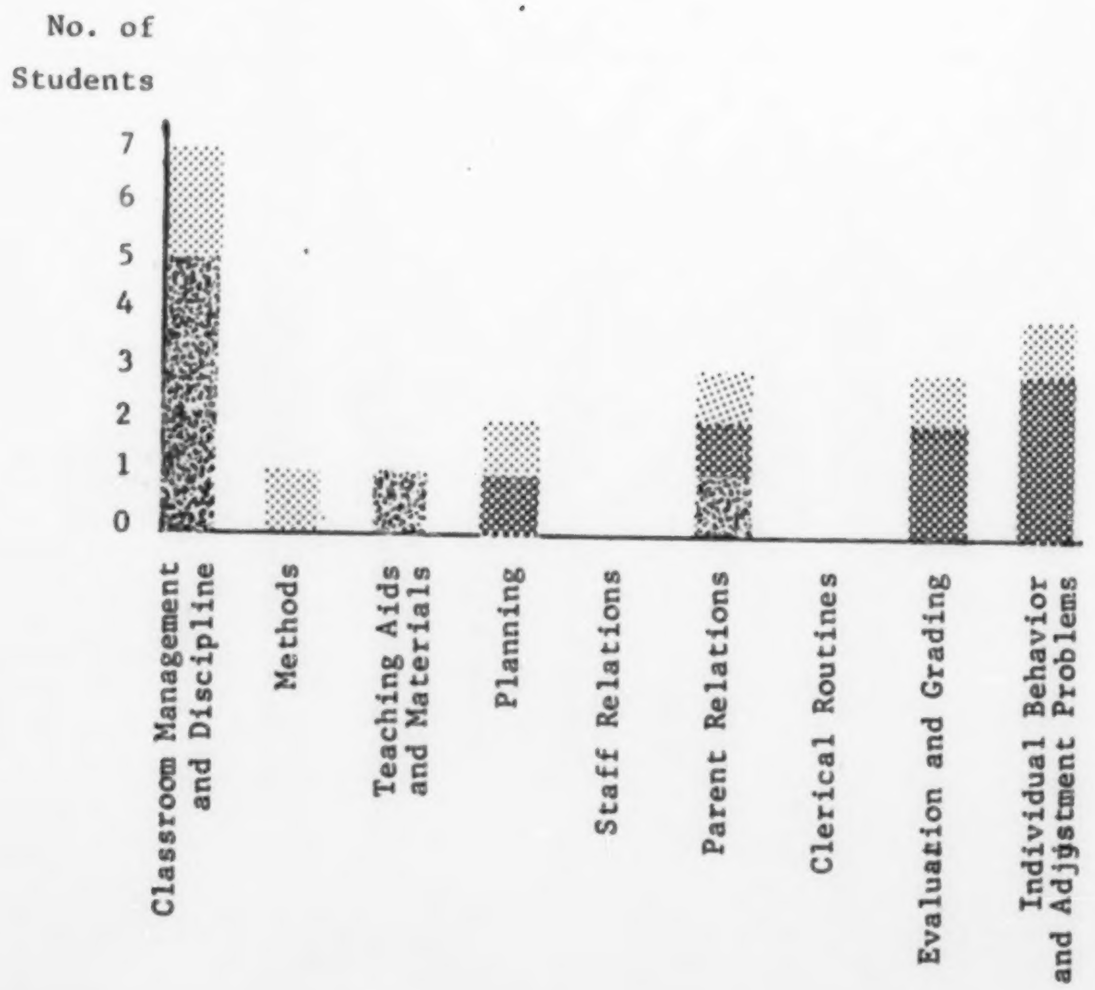
3rd Choice - ░

MITZEL-MEDLEY TEST

Part A

2nd Testing - Spring 1960
Television Students - 7



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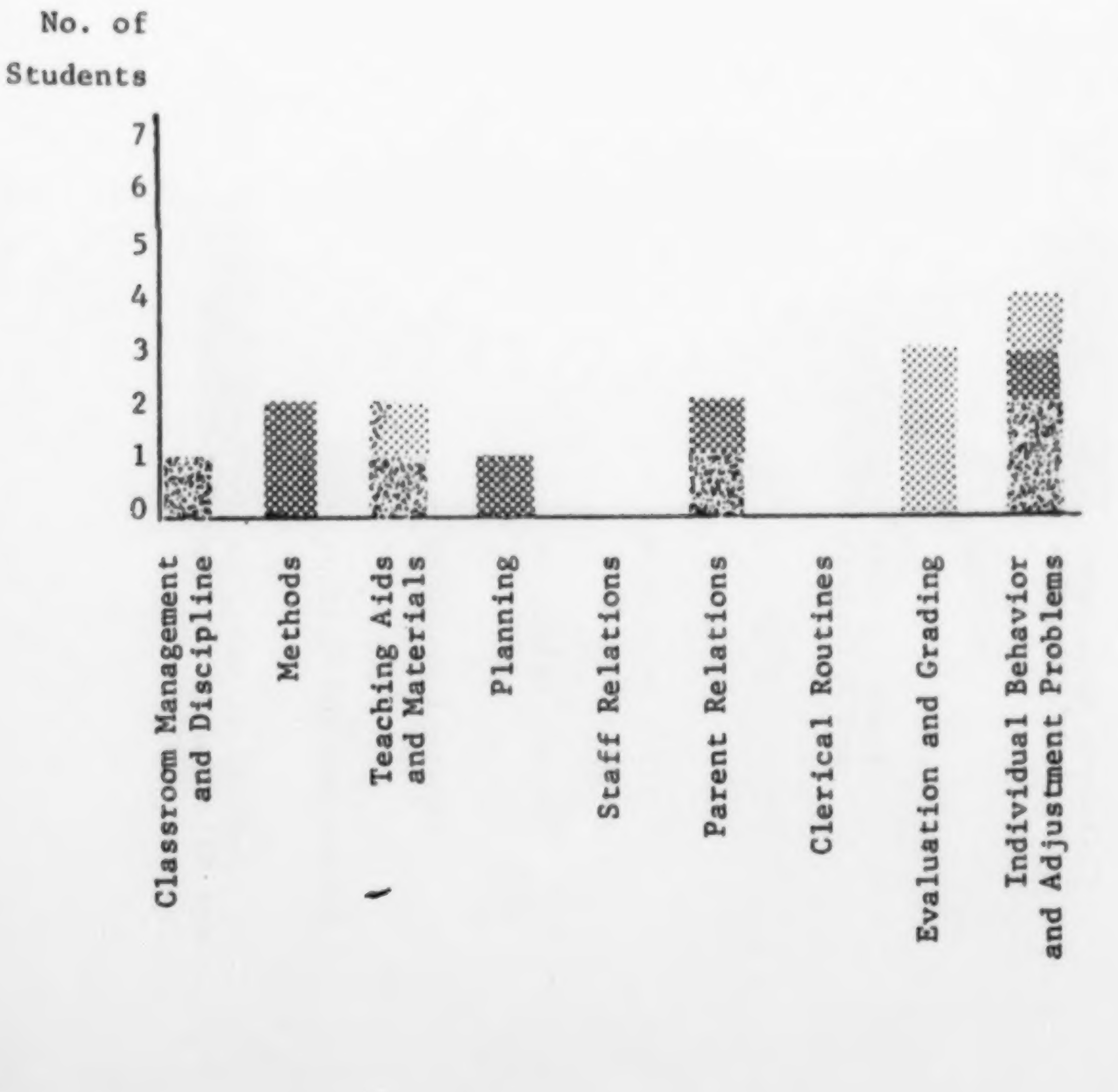
MITZEL-MEDLEY TEST
Part A

2nd Testing - Spring 1960
Tape Students - 5



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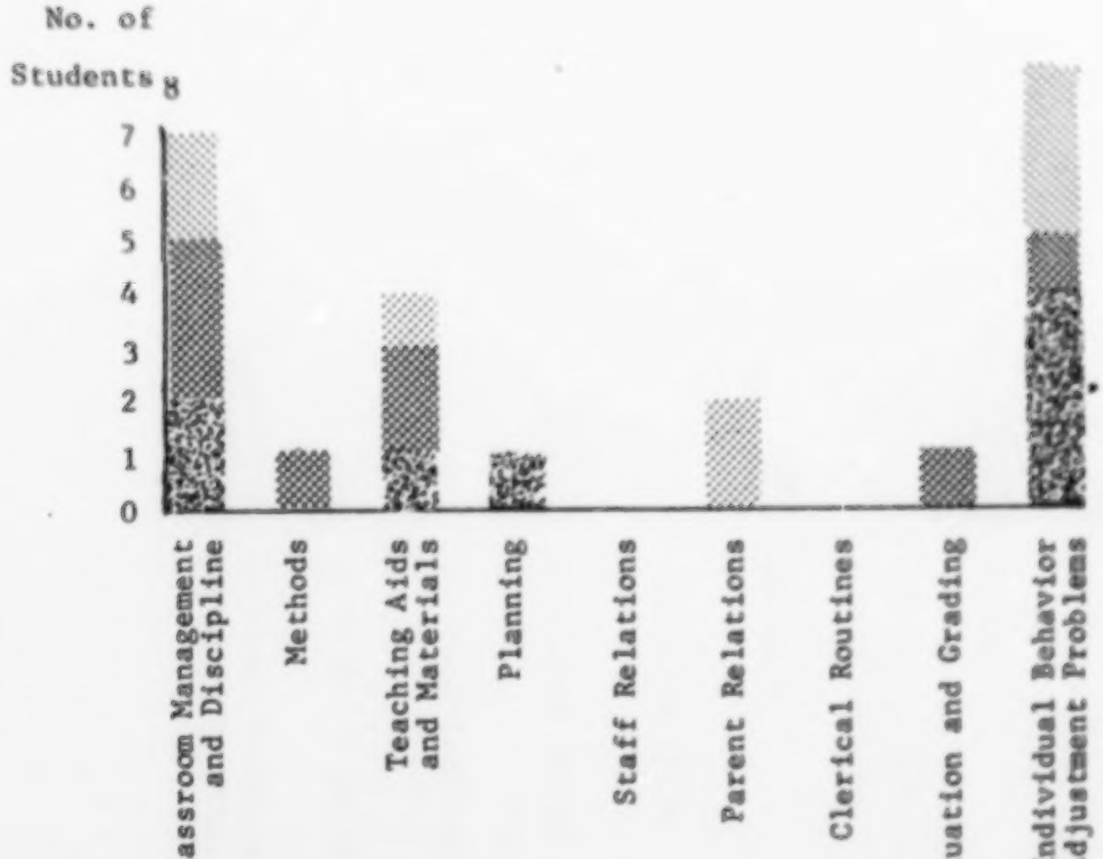
3rd Choice - ▒

MITZEL-MEDLEY TEST

Part A

2nd Testing - Spring 1960
Control Students - 8



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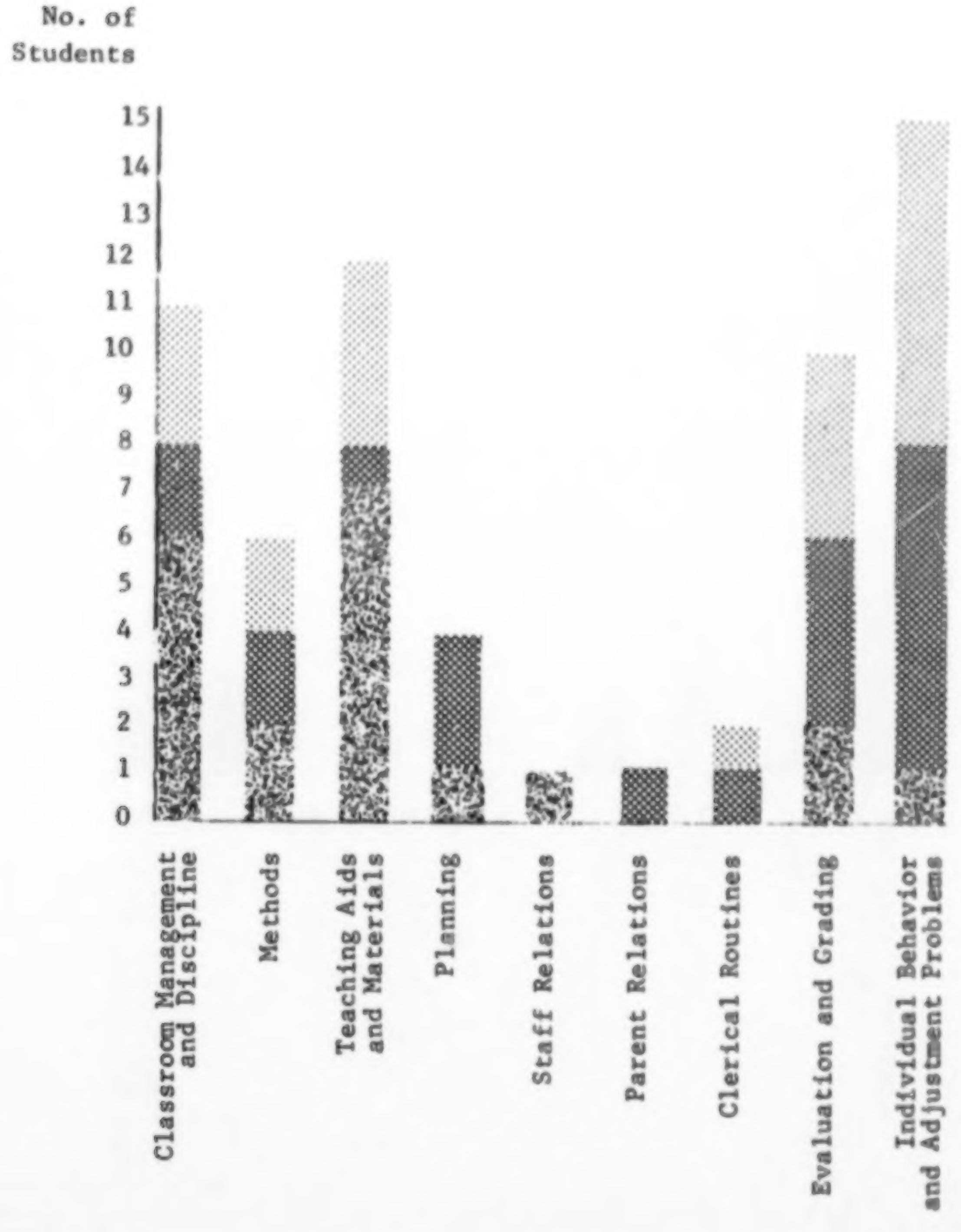
3rd Choice - ░

MITZEL-MEDLEY TEST
Part A

2nd Testing - Fall, 1960
Total Students - 21



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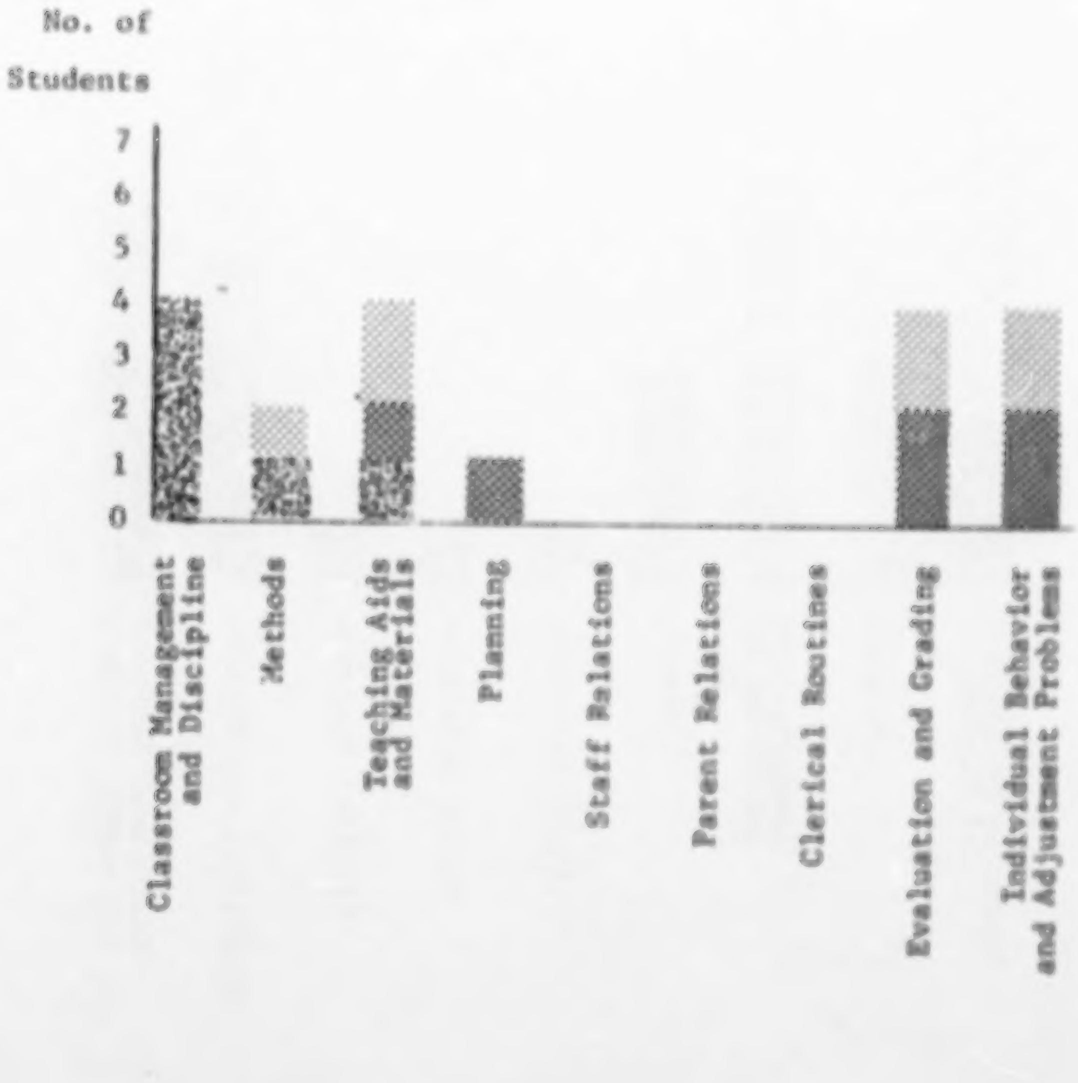
MITZEL-MEDLEY TEST
Part A

2nd Testing - Fall 1960
Television Students - 7



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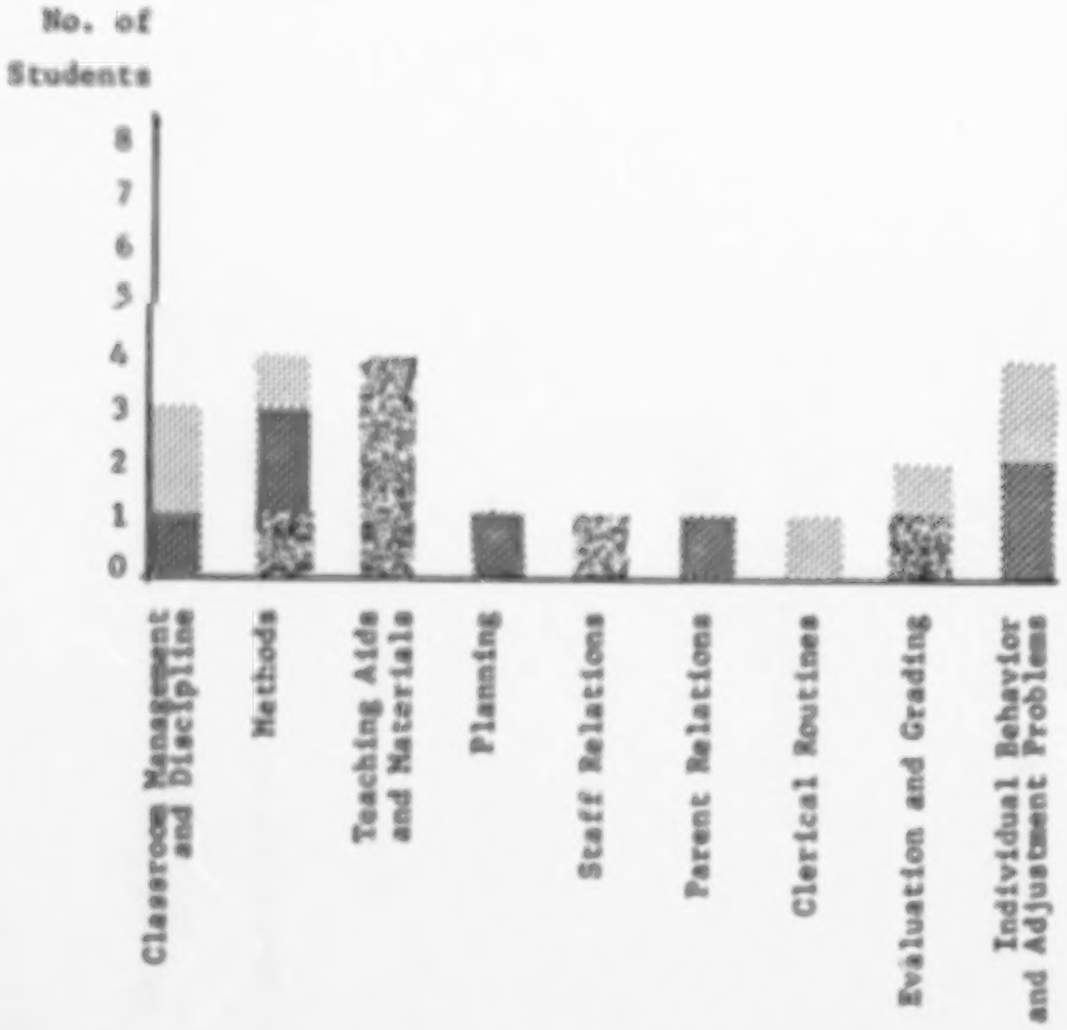
MITZEL-MEDLEY TEST
Part A

2nd Testing - Fall 1960
Tape Students - 7



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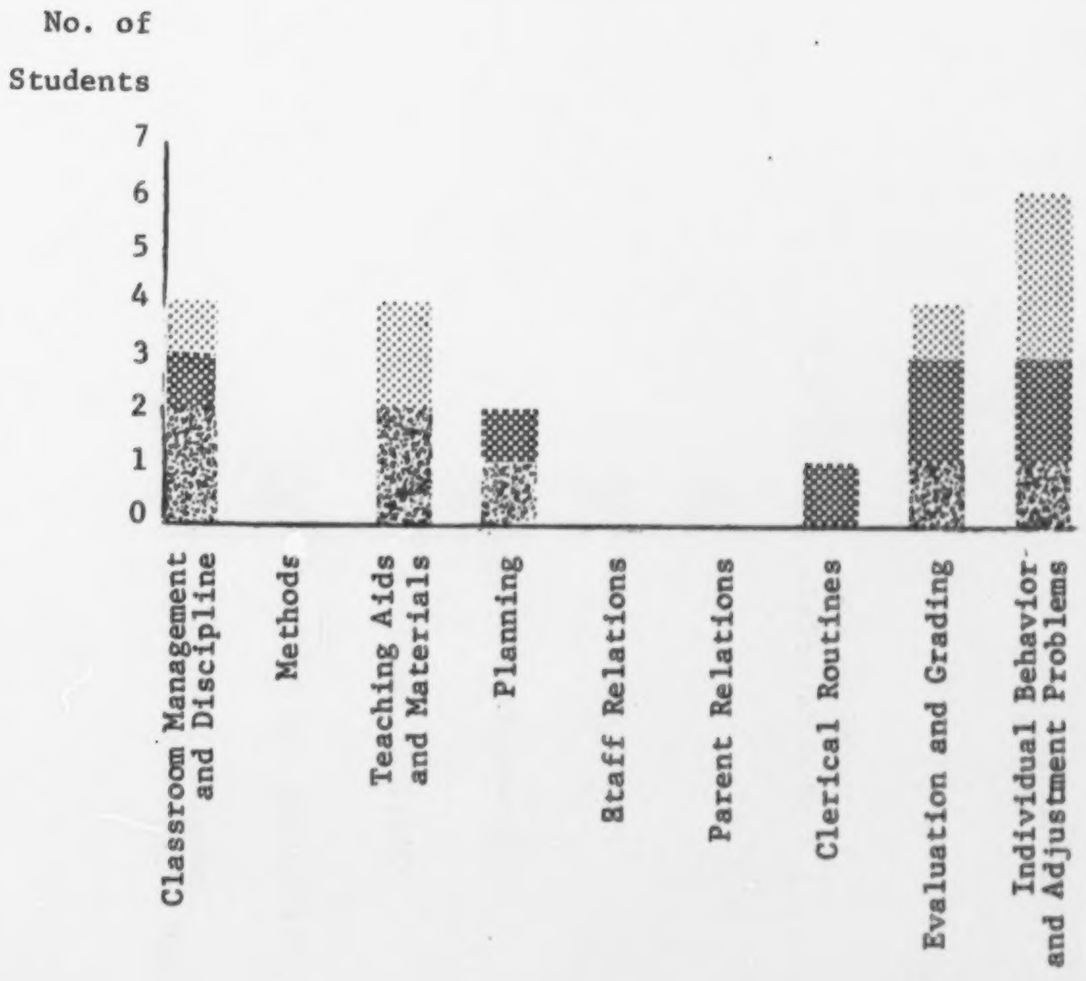
MITZEL-MEDLEY TEST
Part A

2nd Testing – Fall 1960
Control Students - 7



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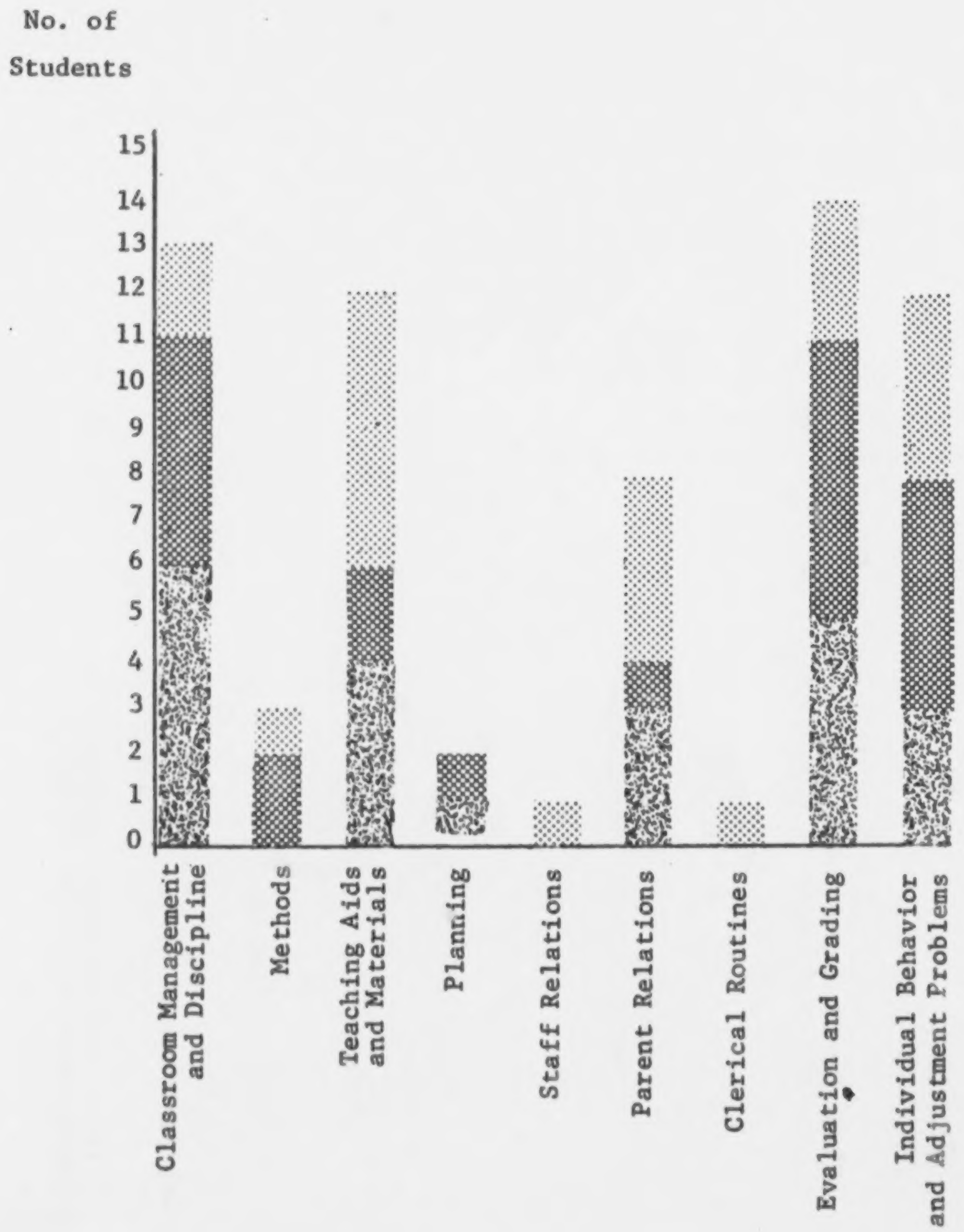
3rd Choice - ░

MITZEL-MEDLEY TEST
Part A

2nd Testing - Winter 1960

Total Students - 22



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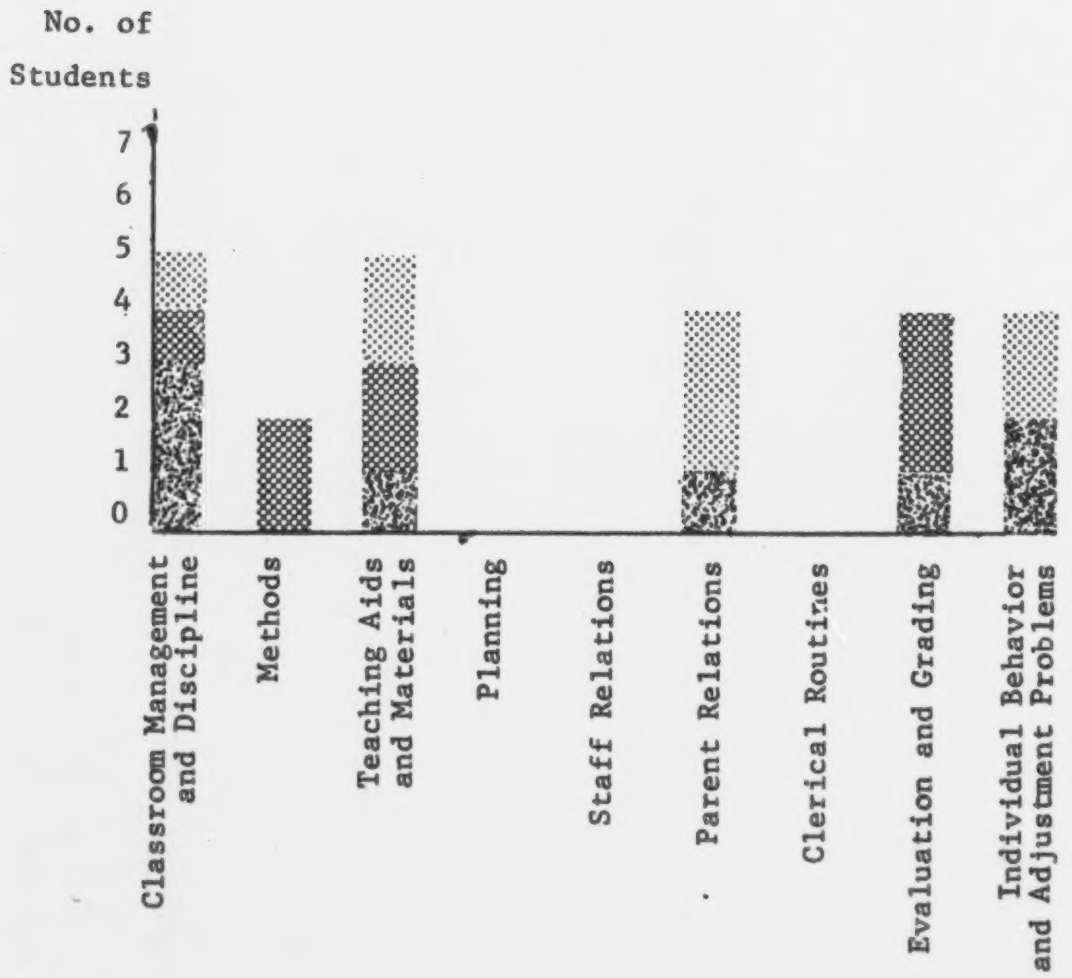
MITZEL-MEDLEY TEST
Part A

2nd Testing - Winter 1960
Television Students - 8



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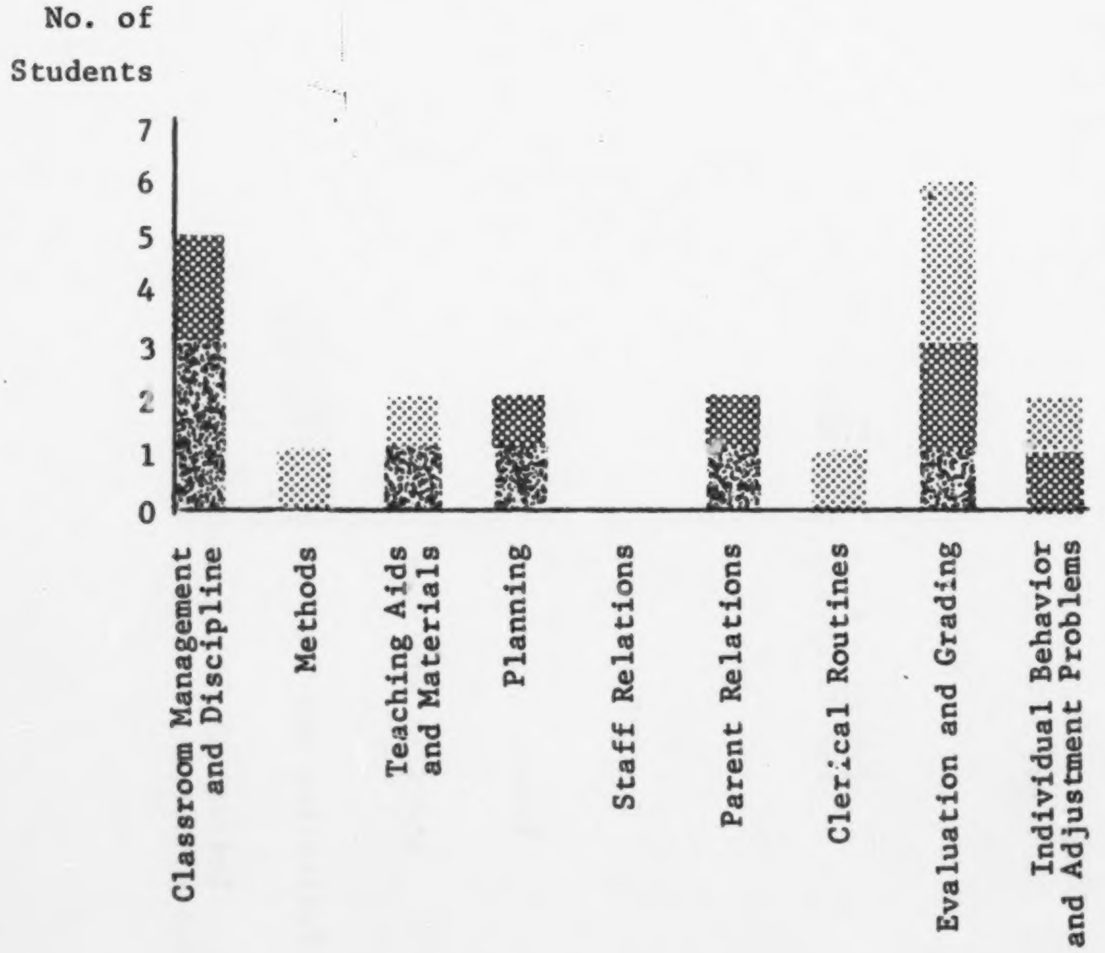
MITZEL-MEDLEY TEST
Part A

2nd Testing - Winter 1960
Tape Students - 7



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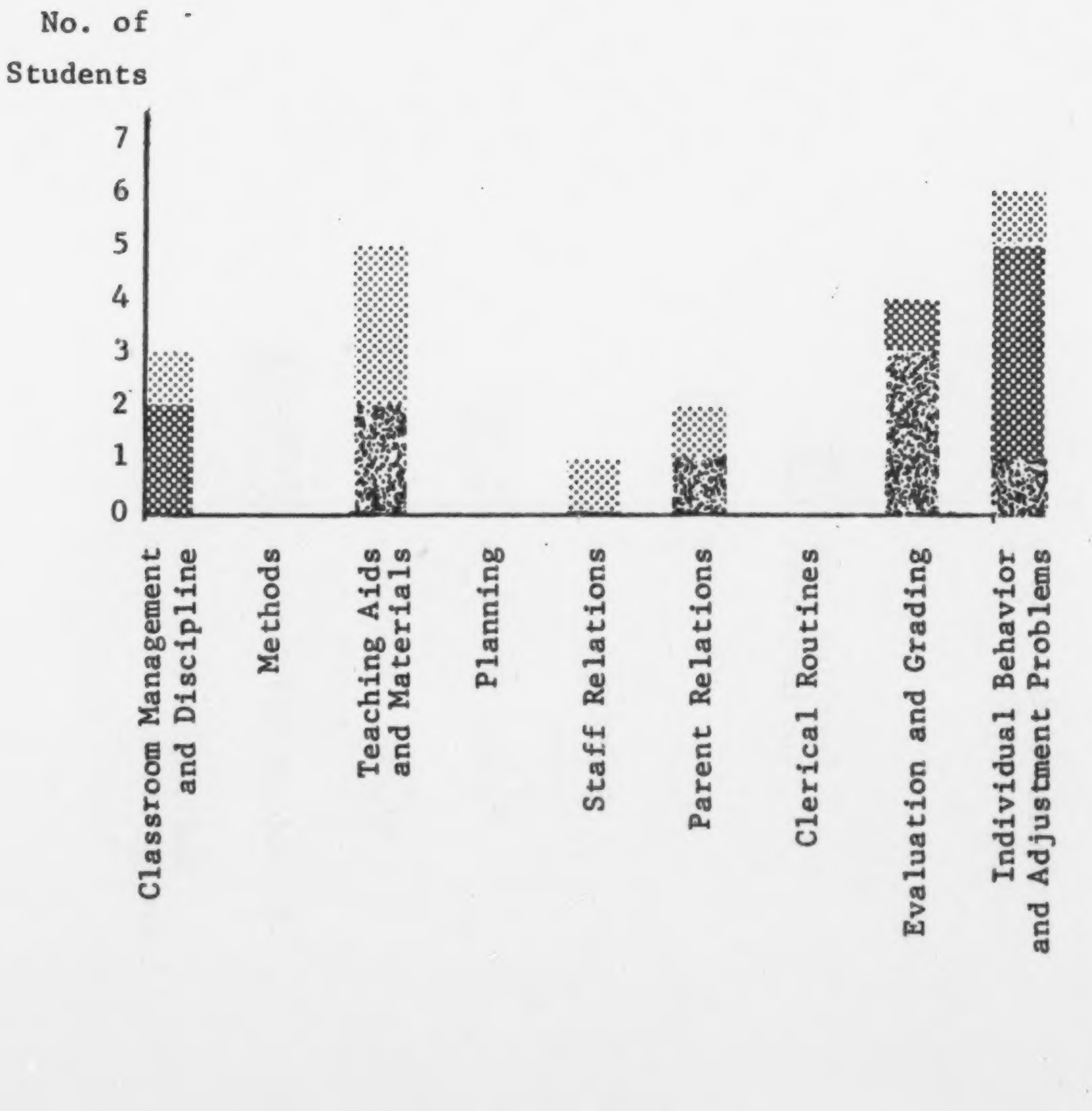
MITZEL-MEDLEY TEST
Part A

2nd Testing - Winter 1960
Control Students - 7



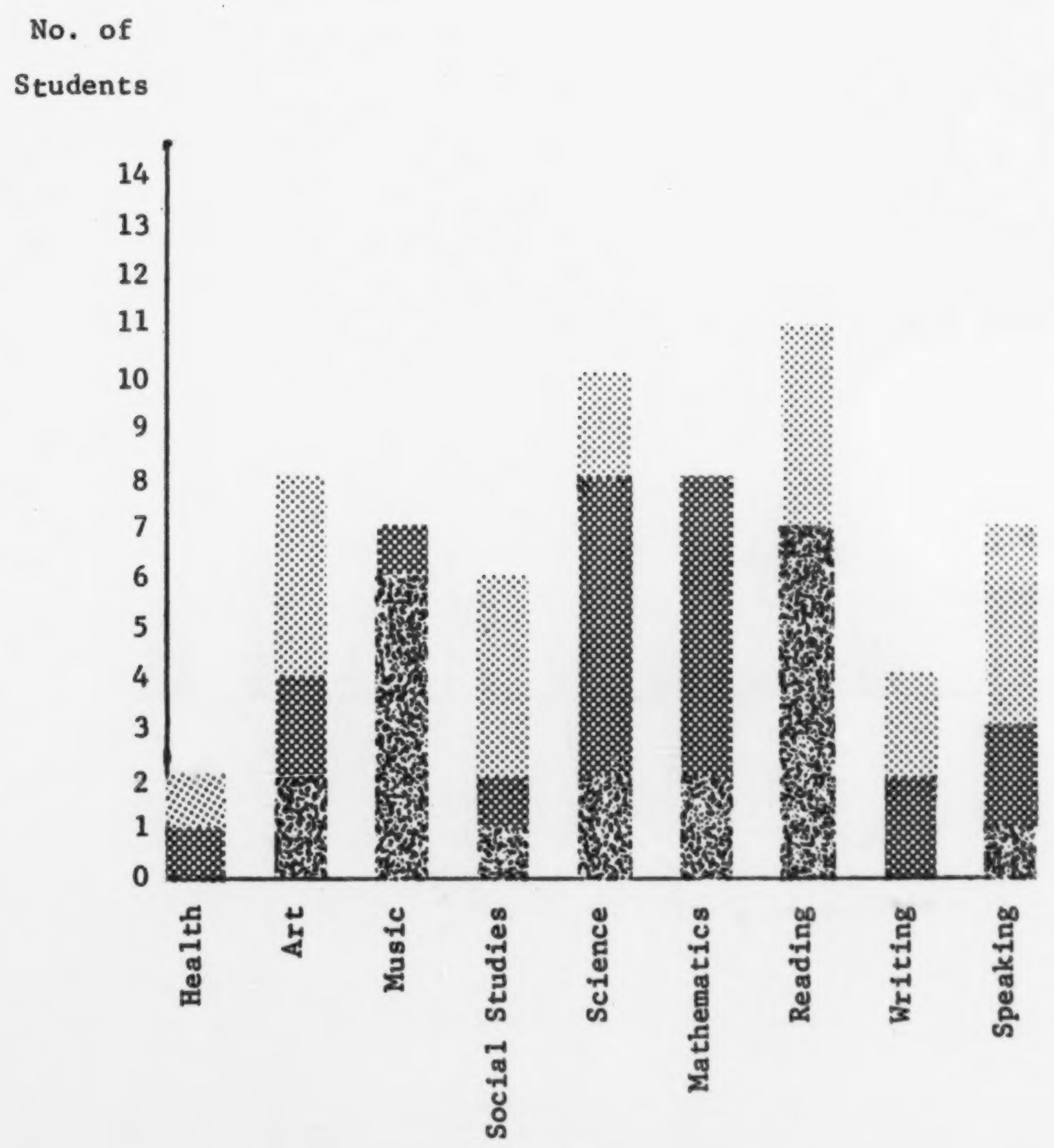
1st Choice - ▓
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST

PART B

First Testing - Spring 1960

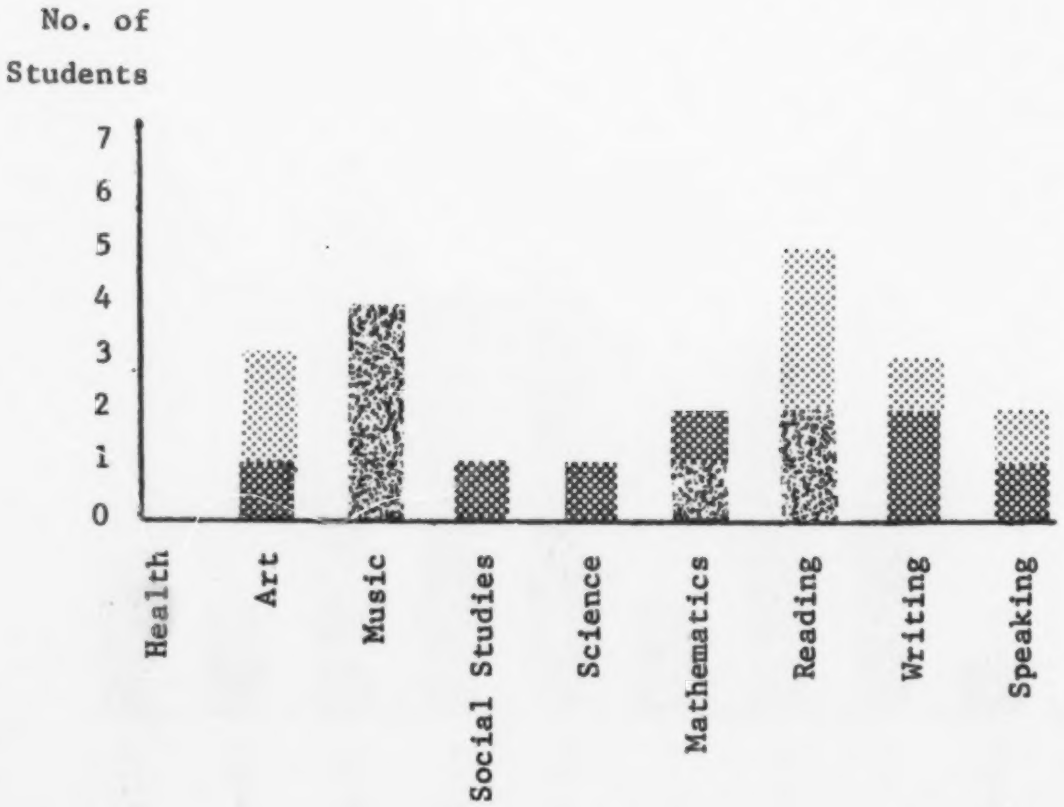
Total Students - 21



1st Choice - ▨
2nd Choice - ▩
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

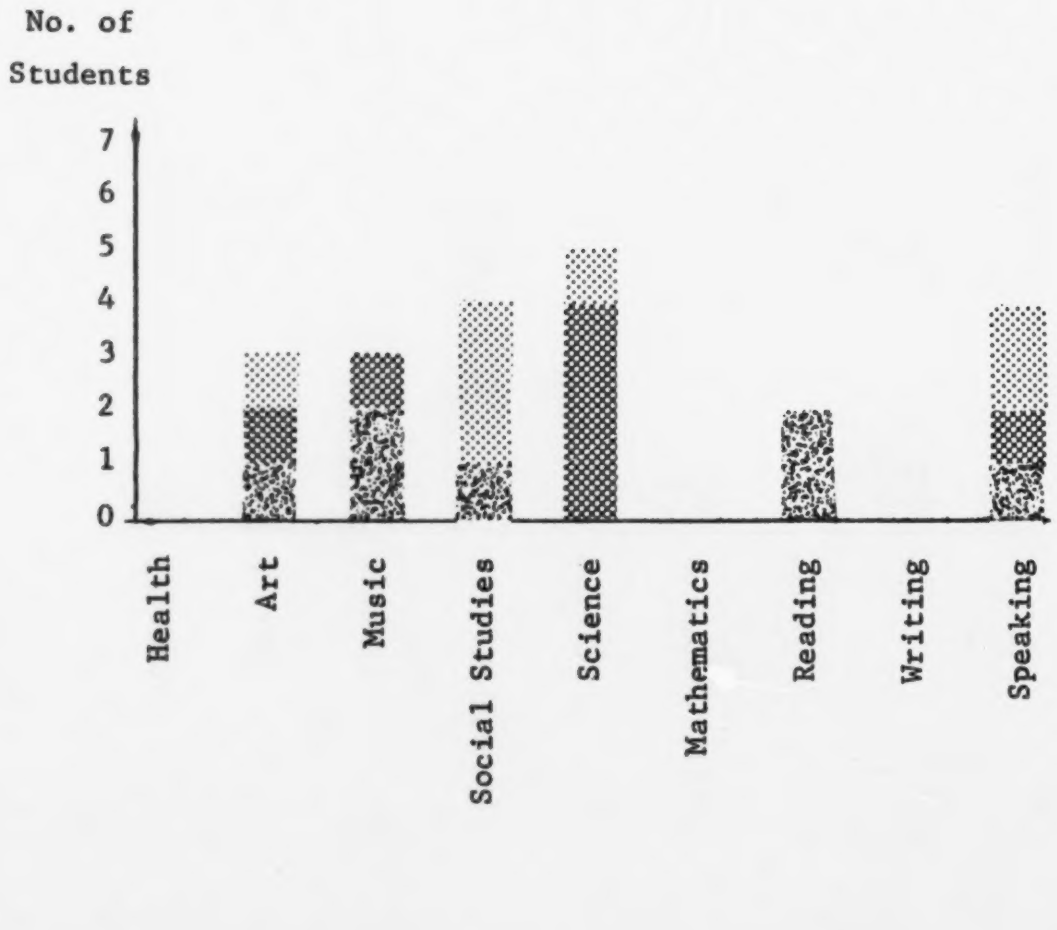
1st Testing - Spring 1960
Television Students - 7



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

1st Testing - Spring 1960
Tape Students - 7



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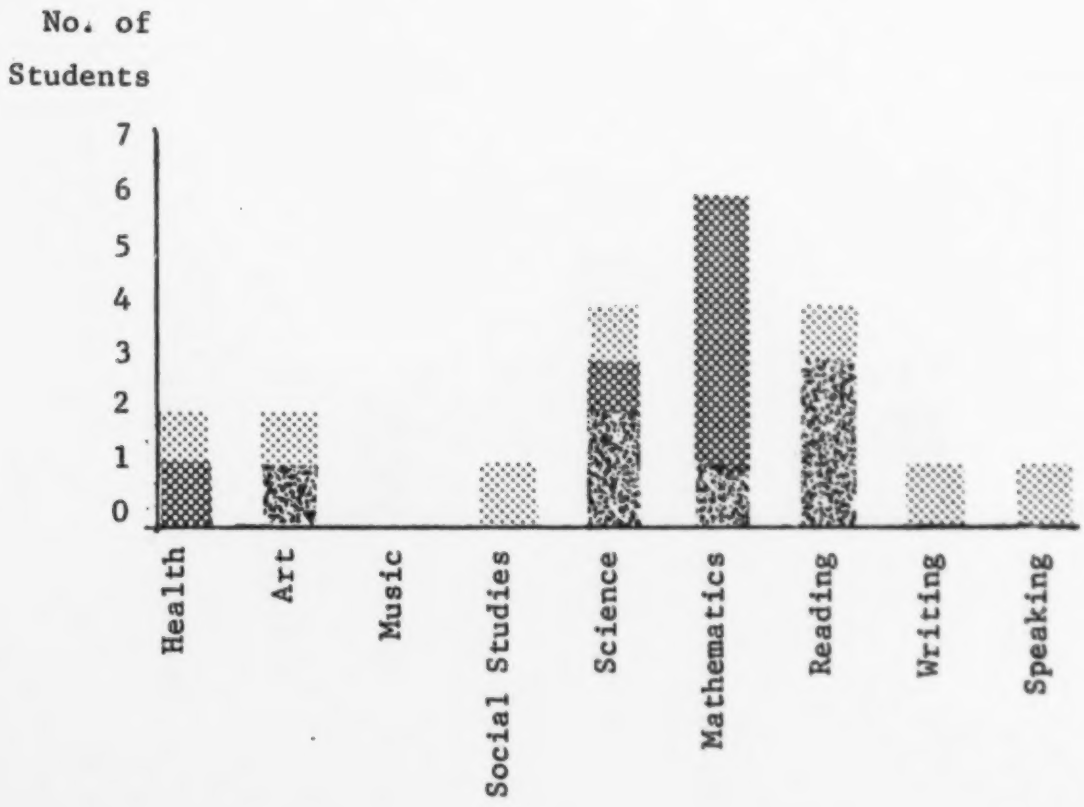
MITZEL-MEDLEY TEST
Part B

1st Testing - Spring 1960
Control Students - 7



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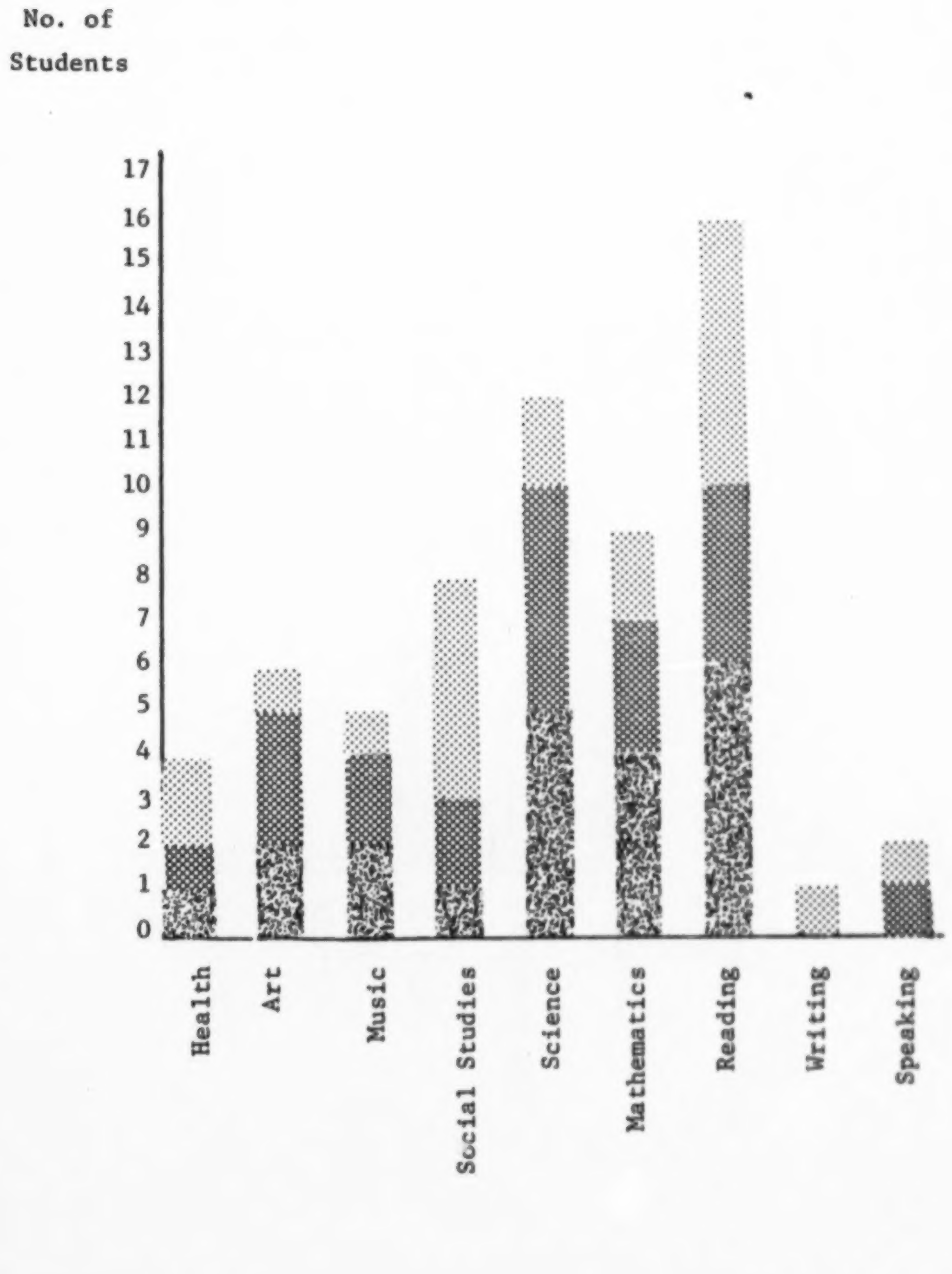
3rd Choice - ▒

MITZEL-MEDLEY TEST
Part B

First Testing - Fall 1960

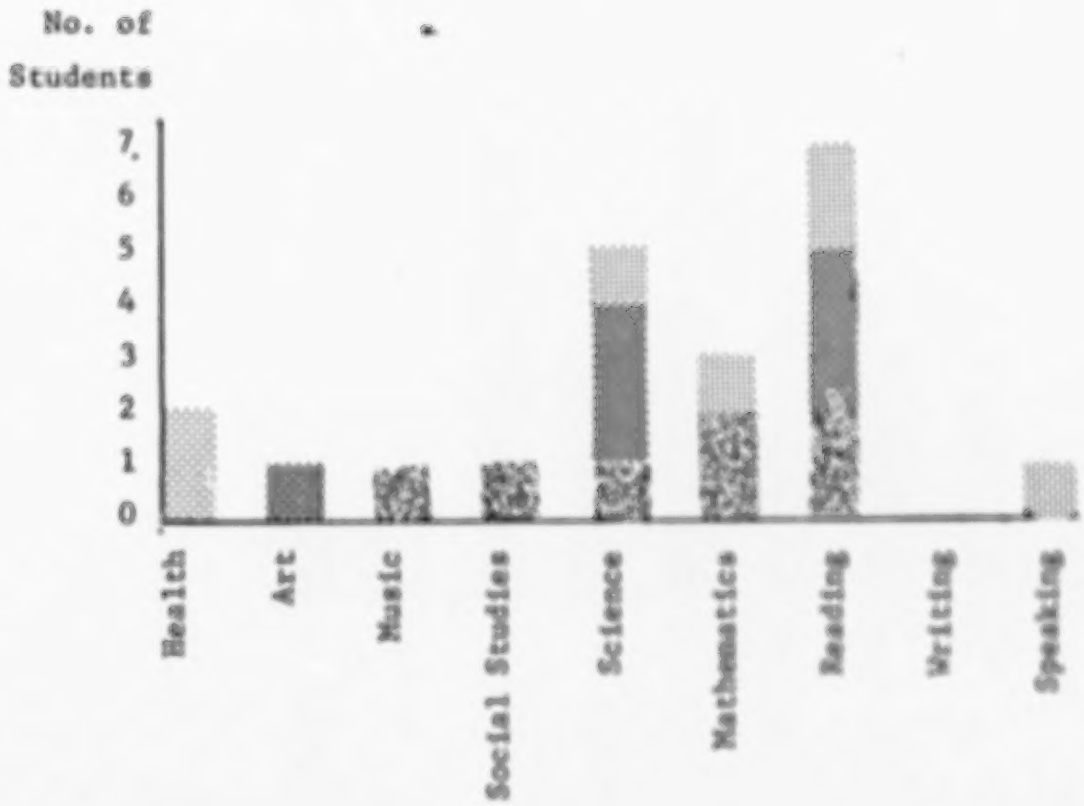
Students - 21



1st Choice - ▩
2nd Choice - ■
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

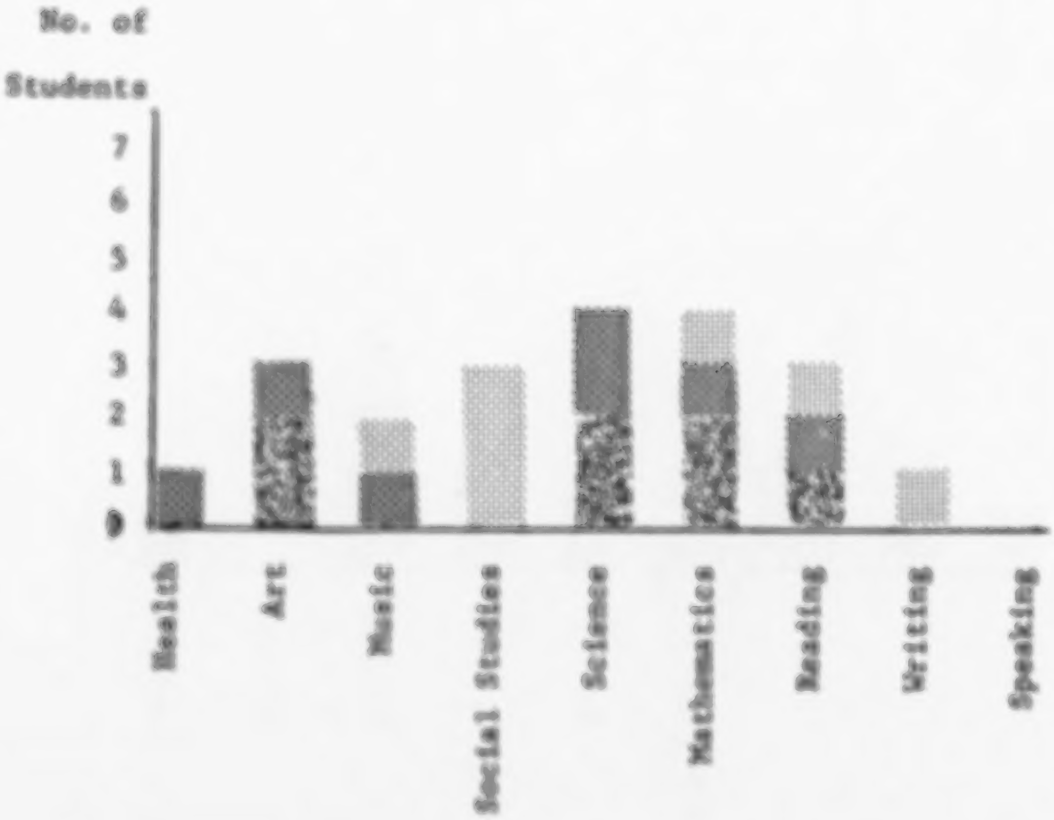
First Testing - Fall 1960
Television Students - 7



1st Choice - ▨
2nd Choice - ■
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

First Testing - Fall 1960
Tape Students - 7



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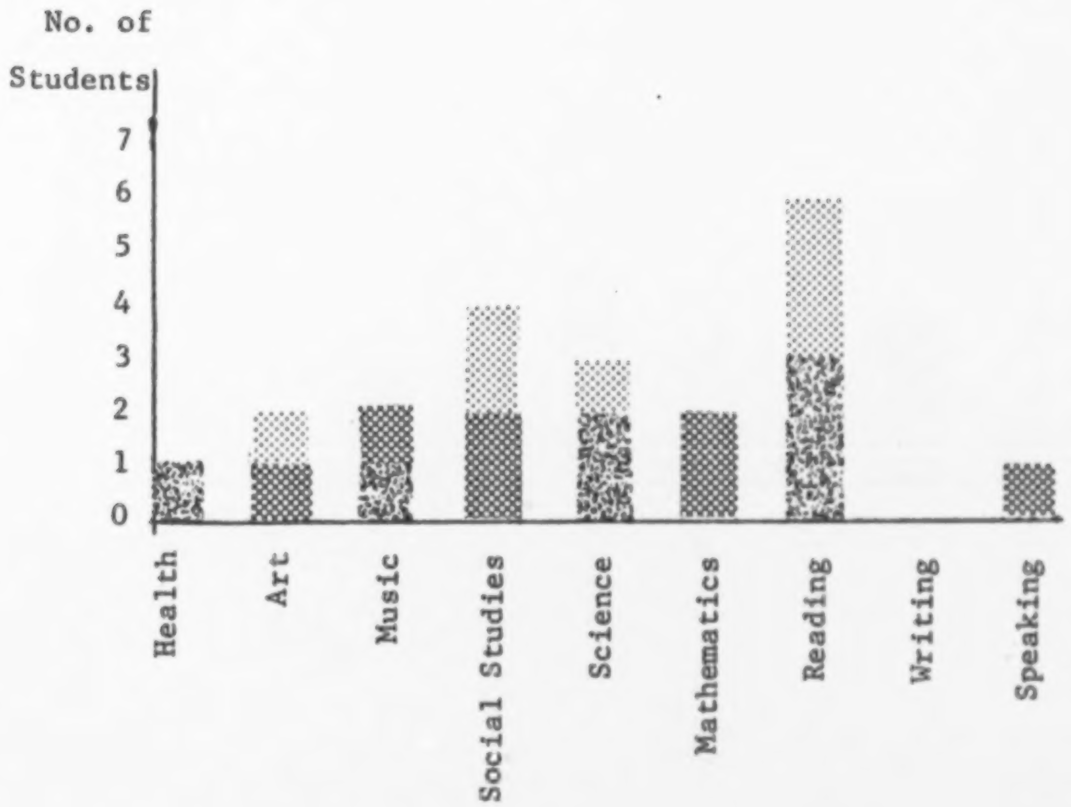
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

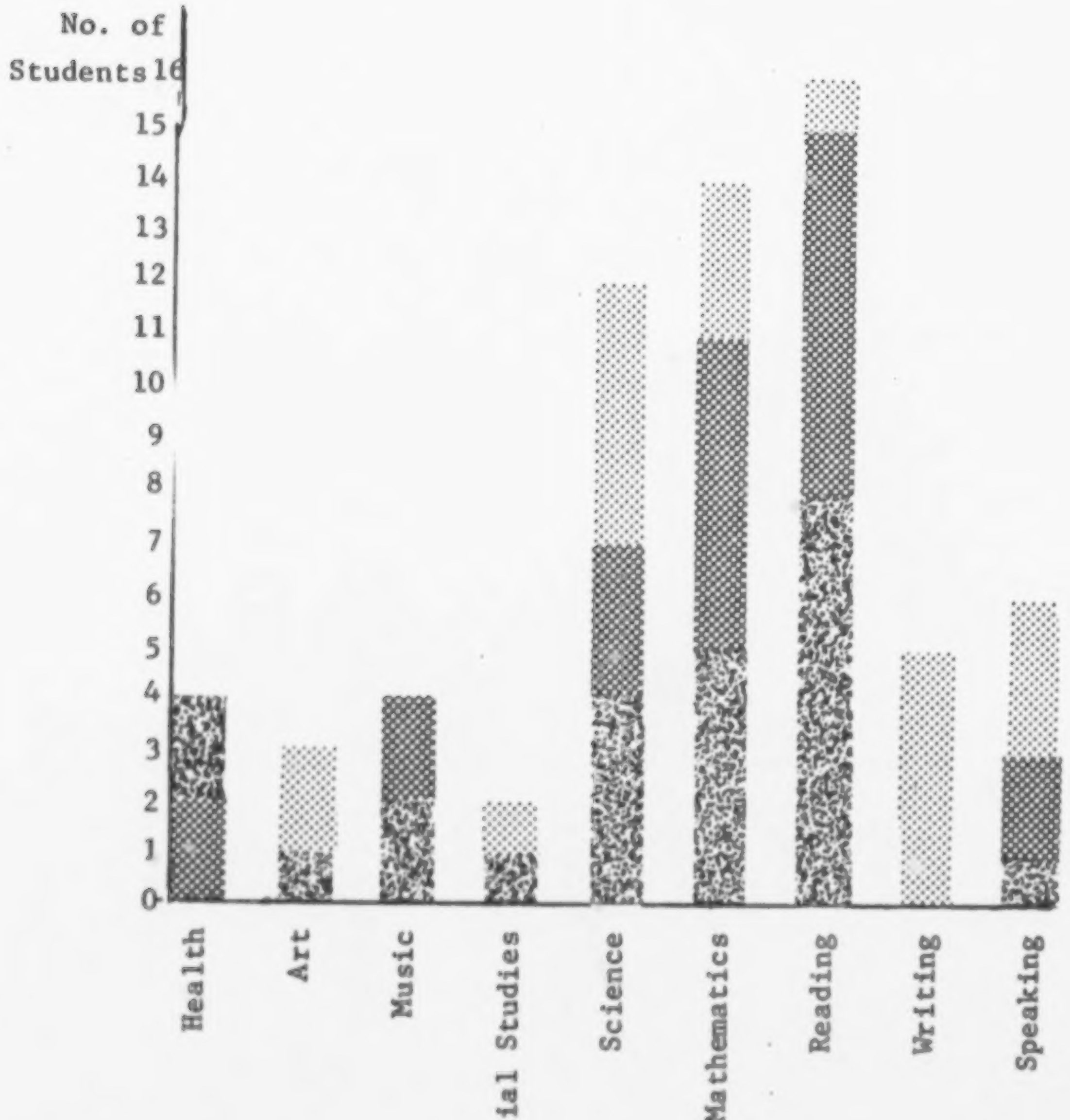
1st Testing - Fall 1960
Control Students - 7



1st choice - ▩
2nd choice - ▦
3rd choice - ░

MITZEL-MEDLEY TEST
PART B

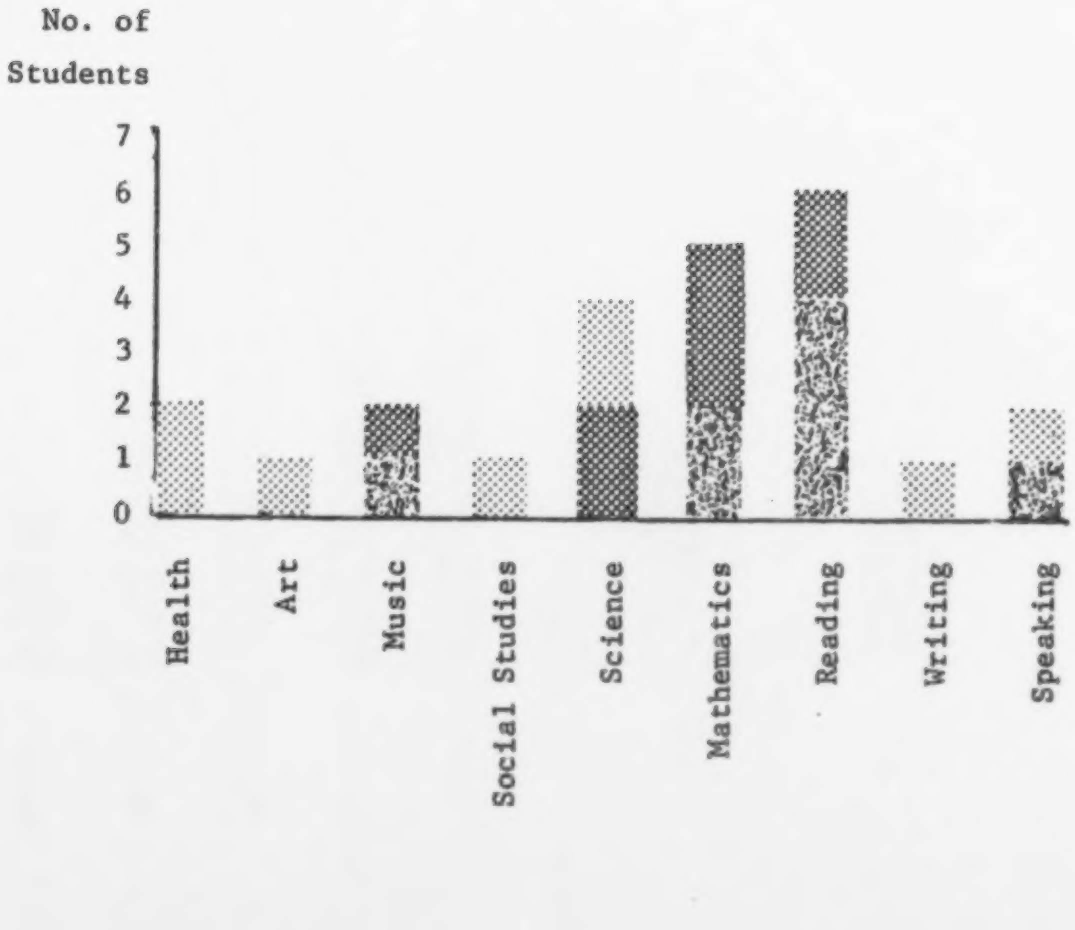
First Testing - Winter 1960
Total Students - 22



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

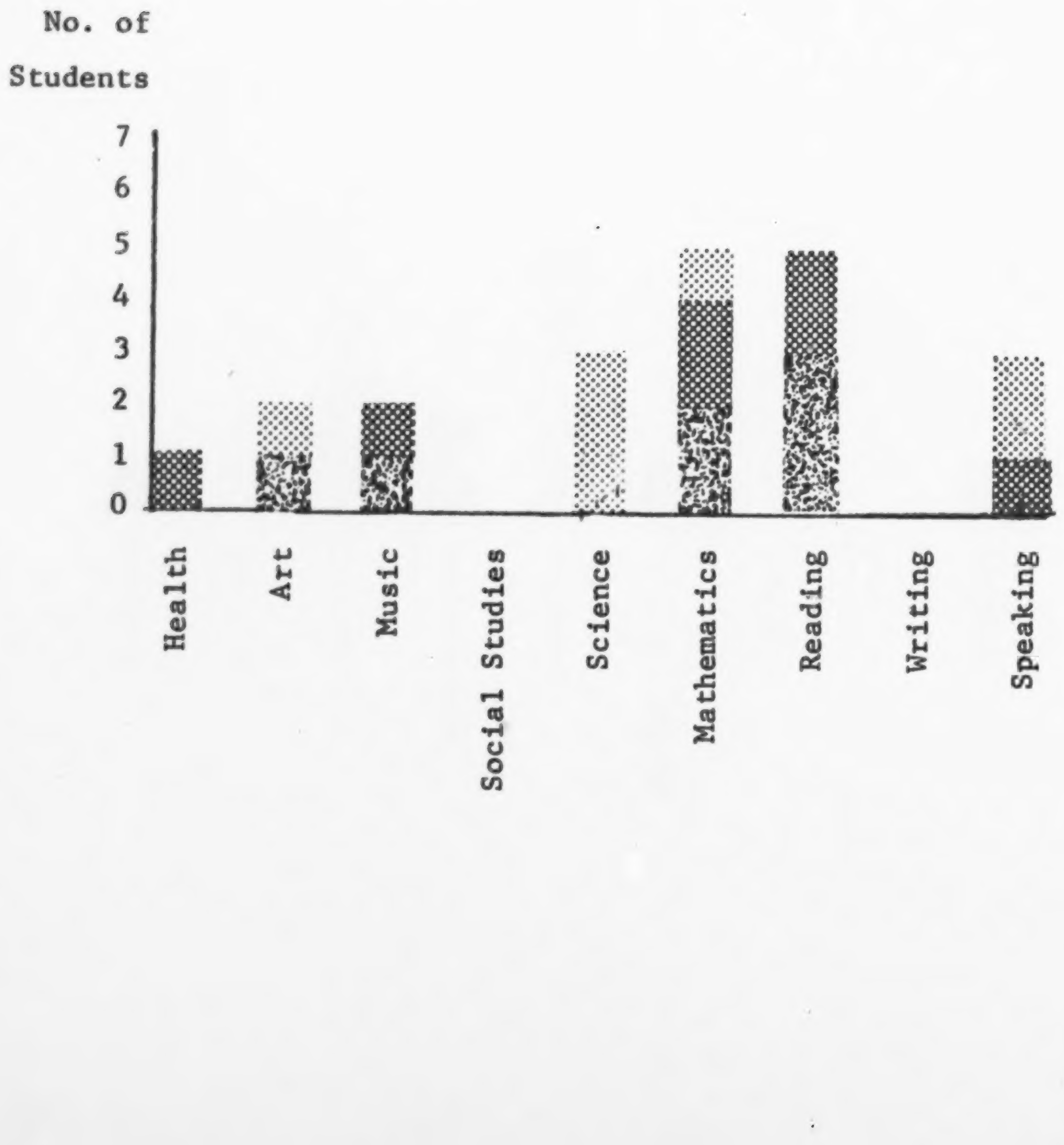
1st Testing - Winter 1960
Television Students - 8



1st Choice - ▨
2nd Choice - ▩
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

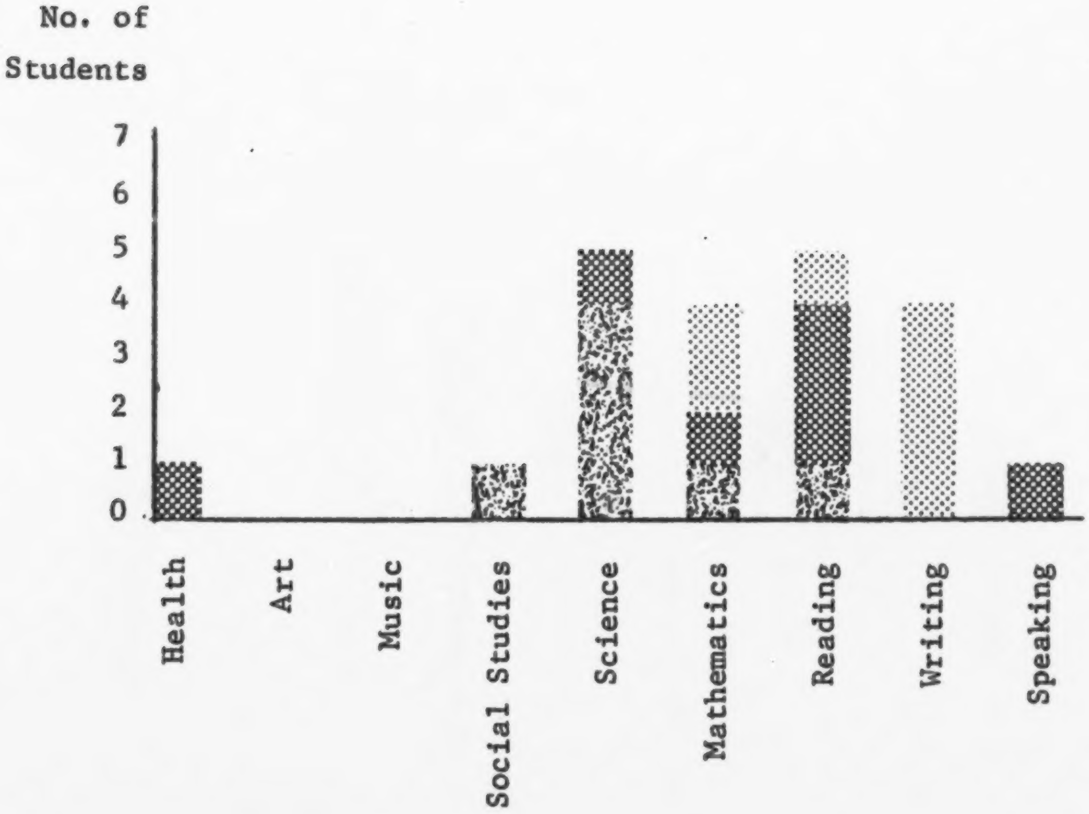
1st Testing - Winter 1960
Tape Students - 7



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

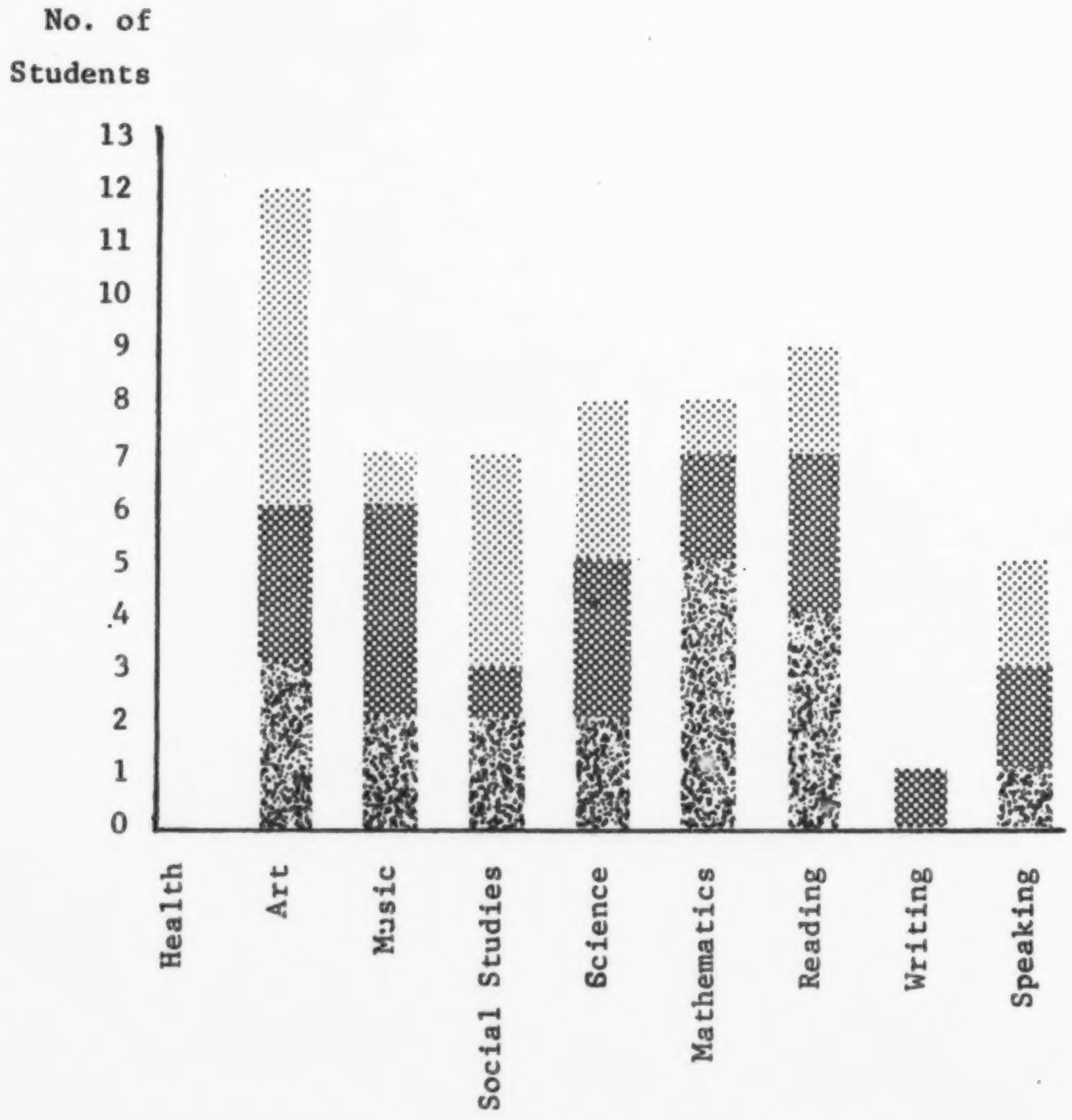
1st Testing - Winter 1960
Control Students - 7



1st Choice - ▓
2nd Choice - ▒
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

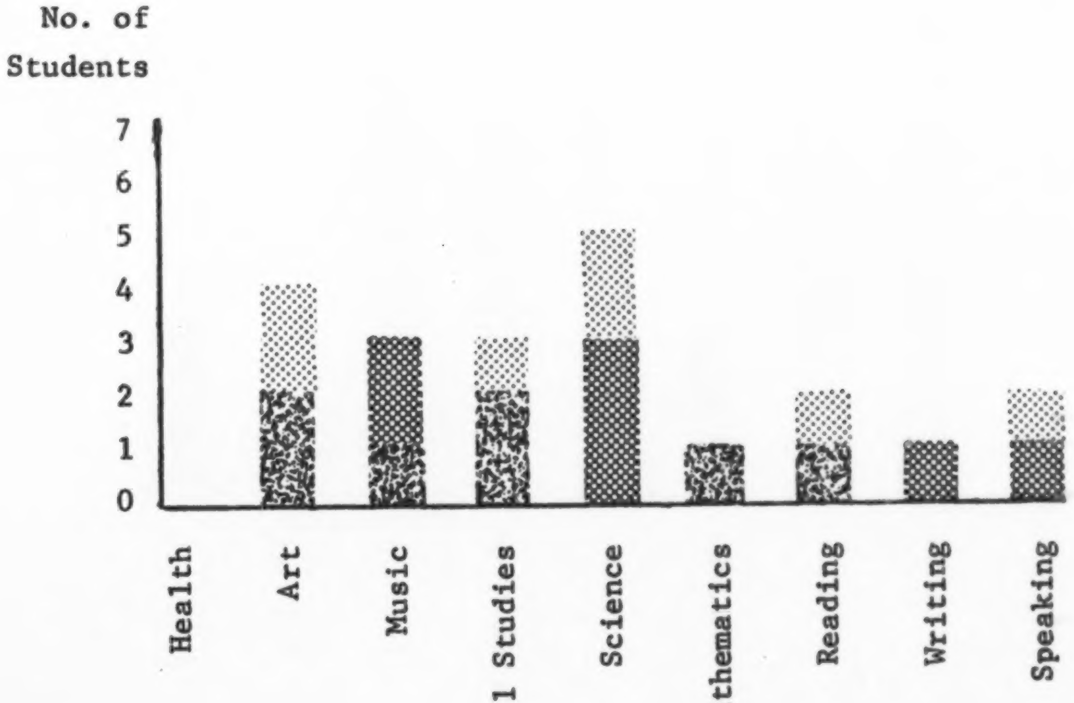
2nd Testing - Spring 1960
Total Students - 19



MITZEL-MEDLEY TEST
Part B

2nd Testing - Spring 1960
Television Students - 7

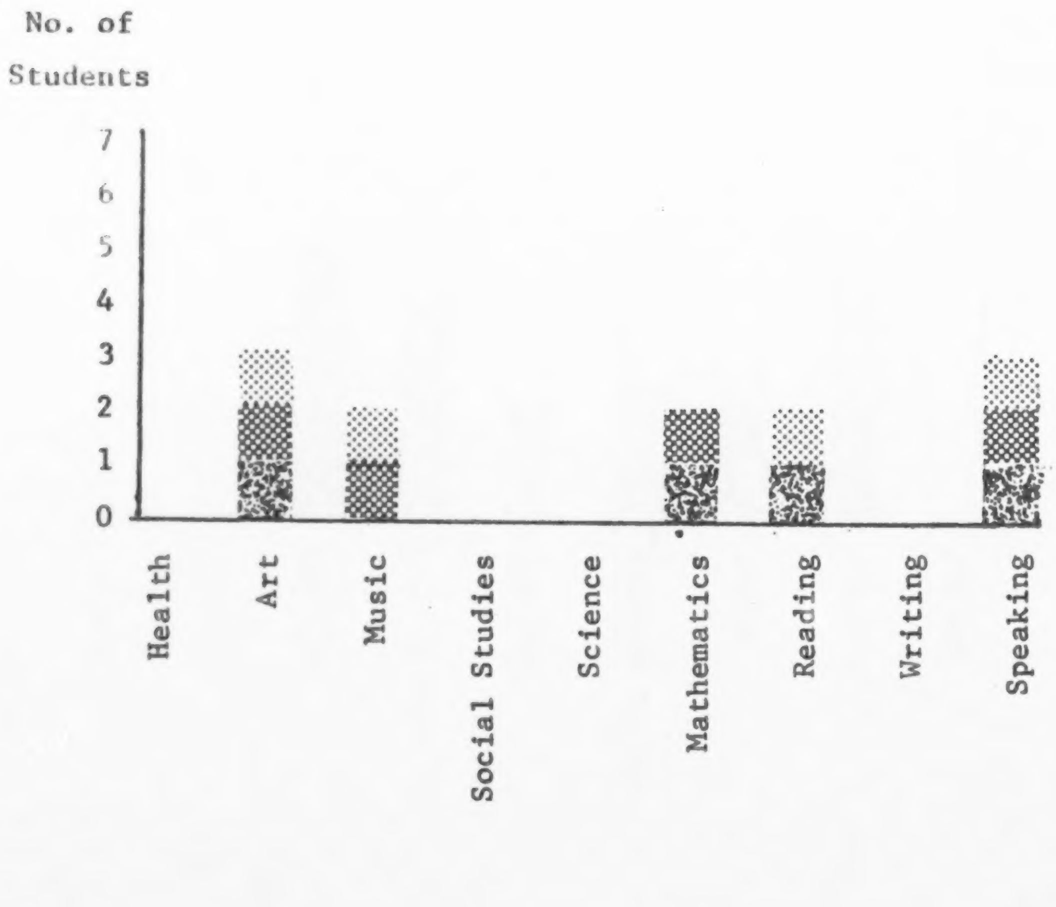
1st Choice - ▩
2nd Choice - ▦
3rd Choice - ▒



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

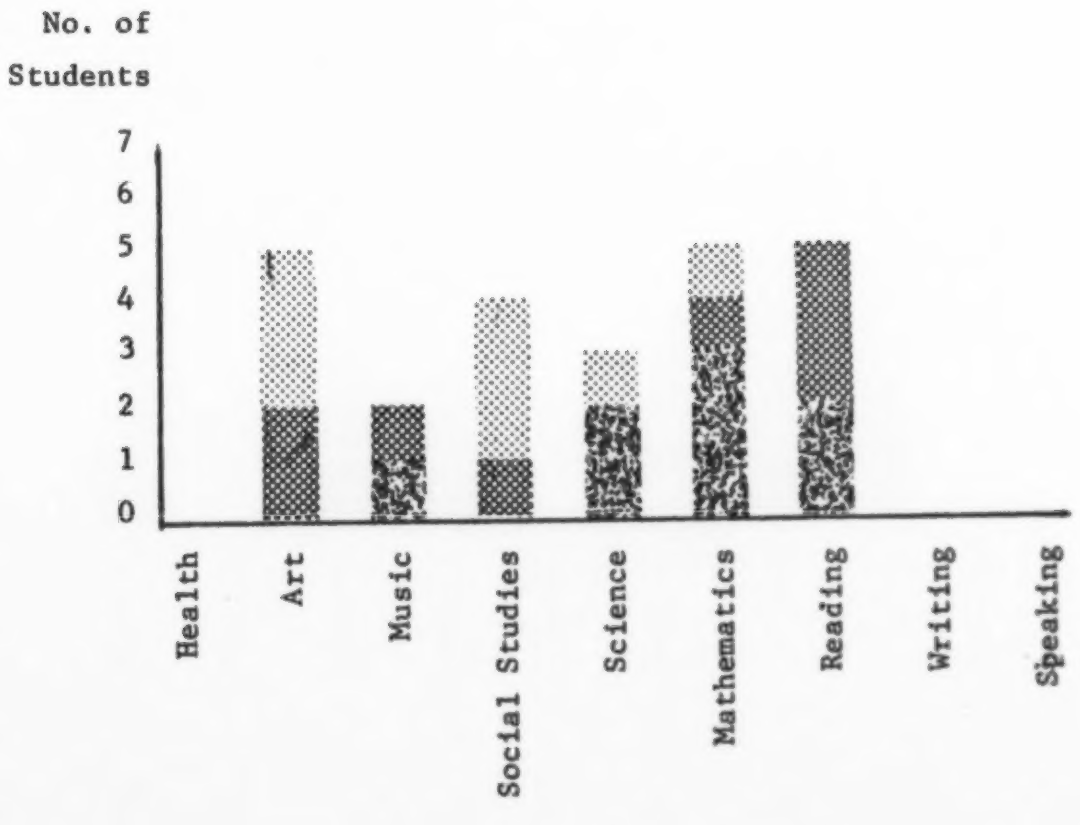
2nd Testing - Spring 1960
Tape Students - 4



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

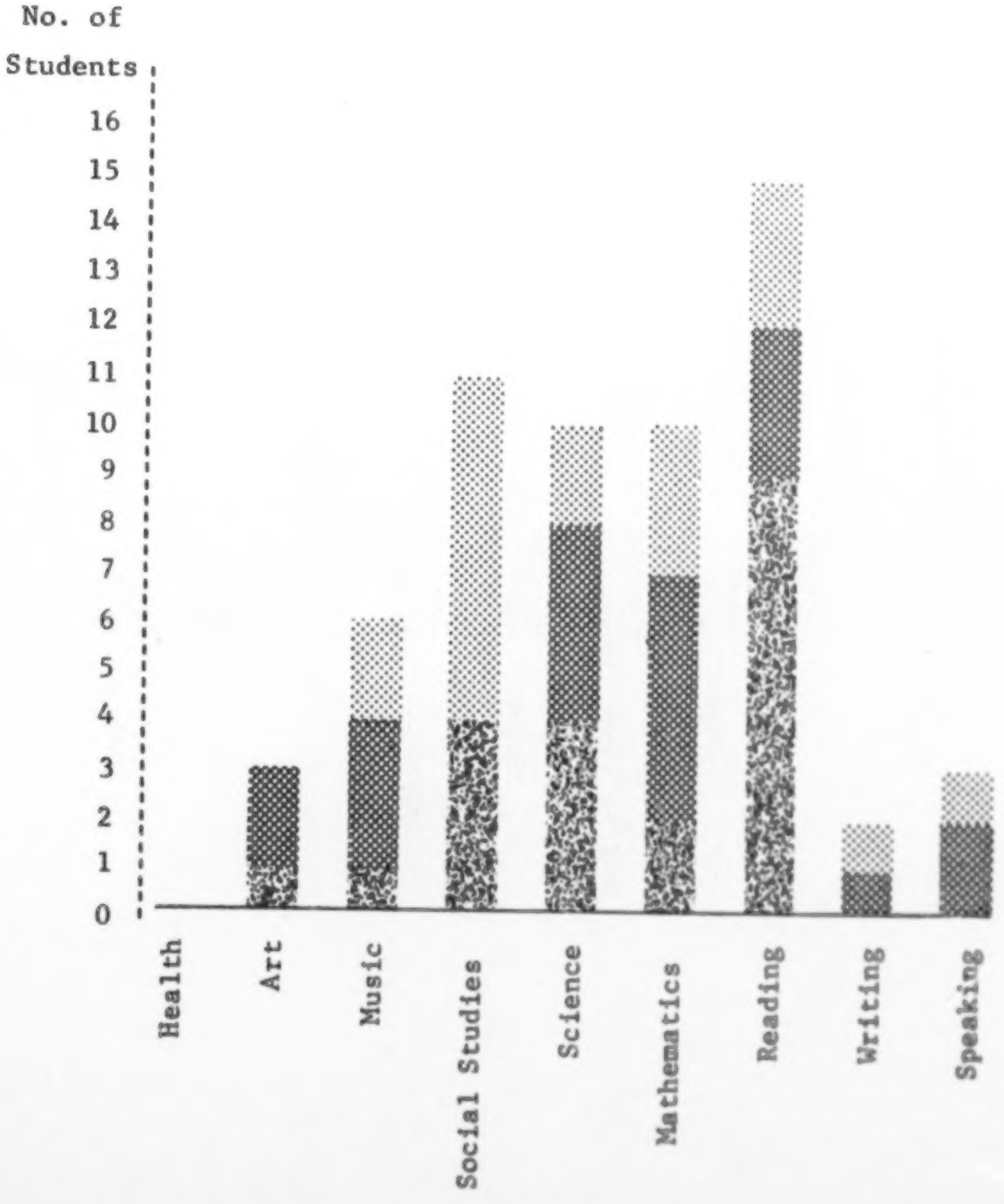
2nd Testing - Spring 1960
Control Students - 8



1st Choice - ▩
2nd Choice - ▓
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

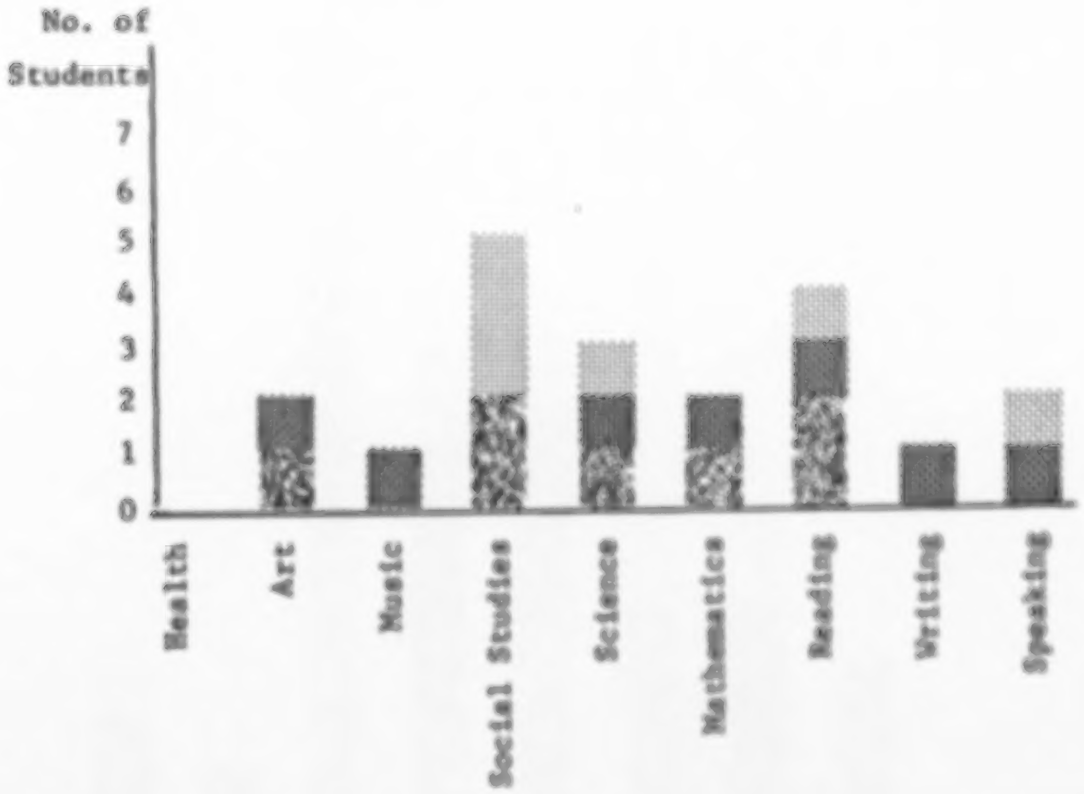
2nd Testing - Fall, 1960
Total Students - 21



1st Choice - ▩
2nd Choice - ■
3rd Choice - ▒

MITZEL-MEDLEY TEST
Part B

2nd Testing - Fall 1960
Television Students - 7



1st Choice - ▩

2nd Choice - ■

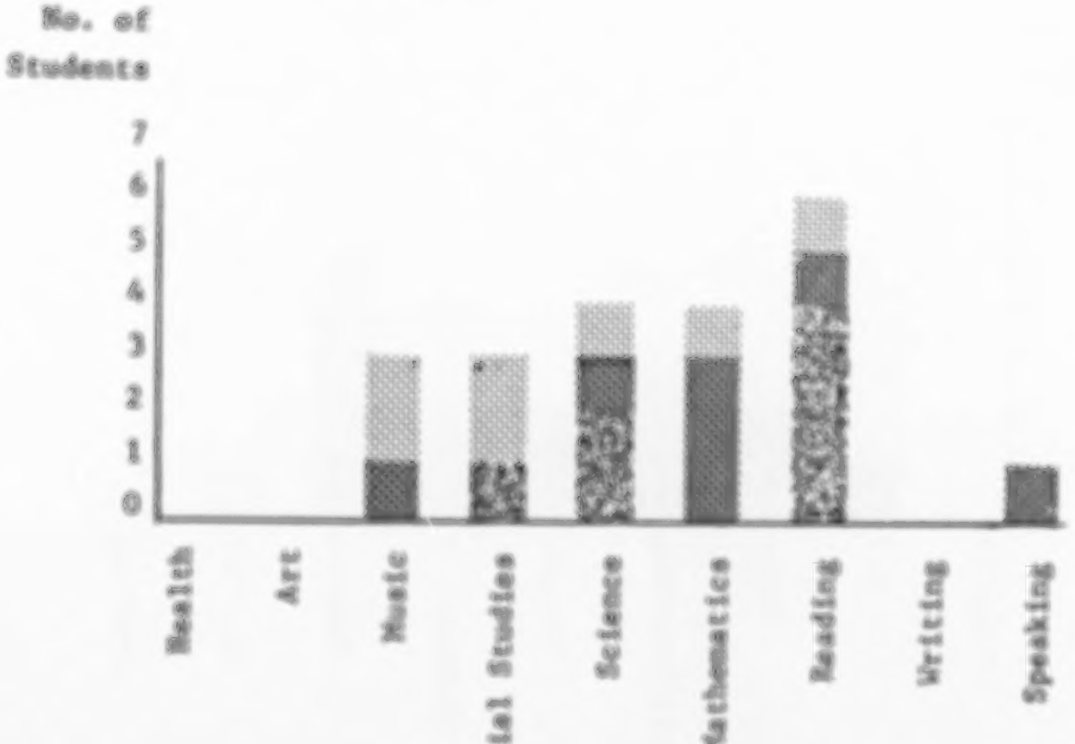
3rd Choice - ▒

MITZEL-MEDLEY TEST

Part B

2nd Testing - Fall 1960

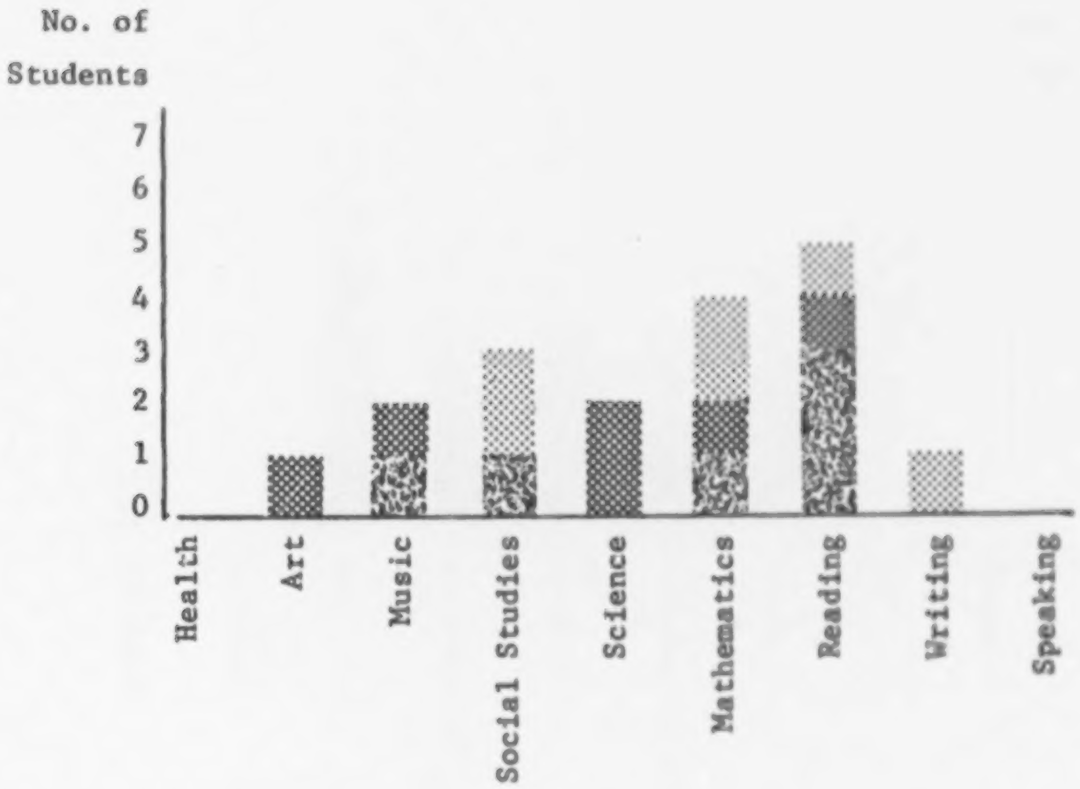
Tape Students - 7



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

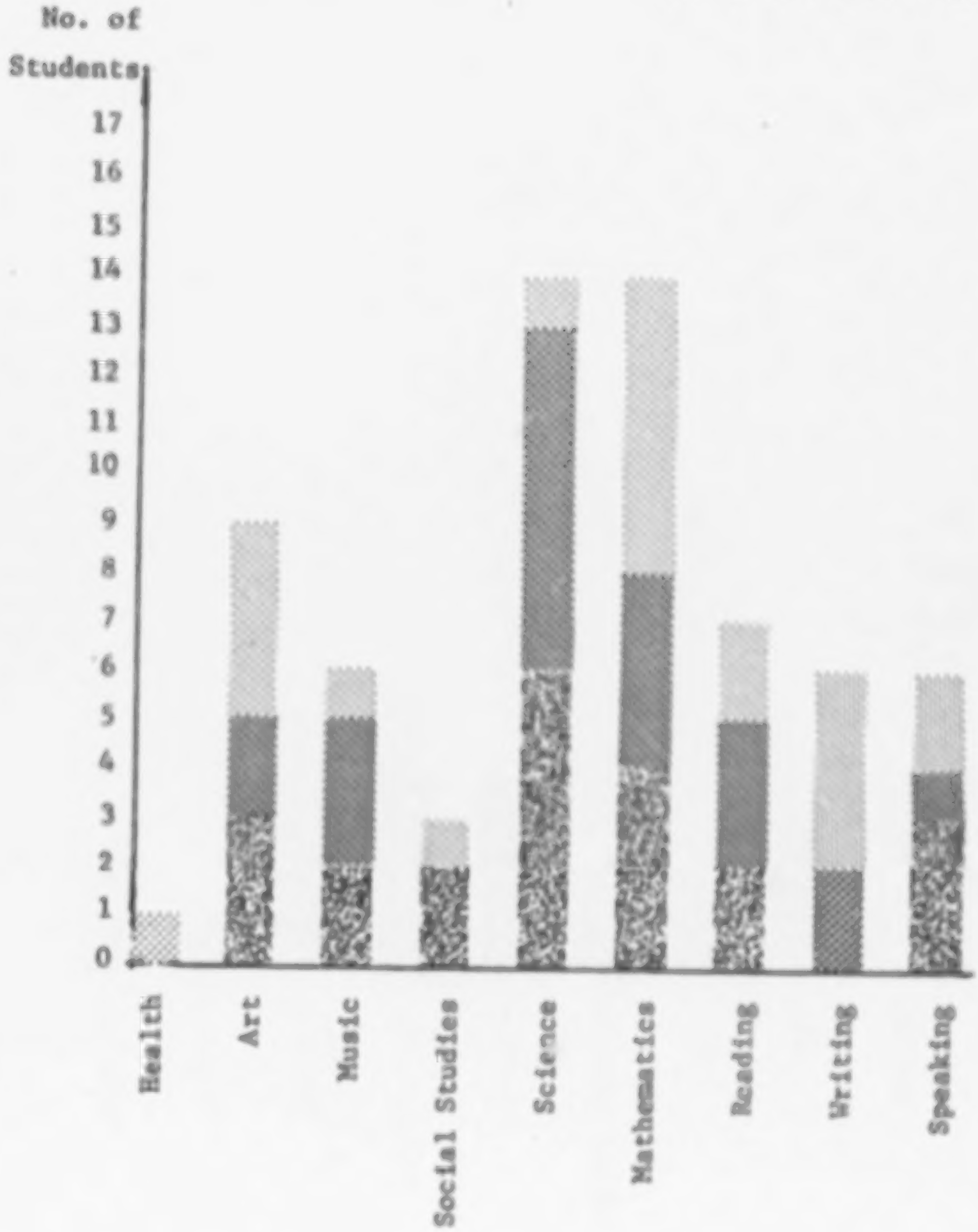
2nd Testing - Fall 1960
Control Students - 7



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ▨

MITZEL-MEDLEY TEST
Part B

2nd Testing - Winter 1960
Total Students - 22



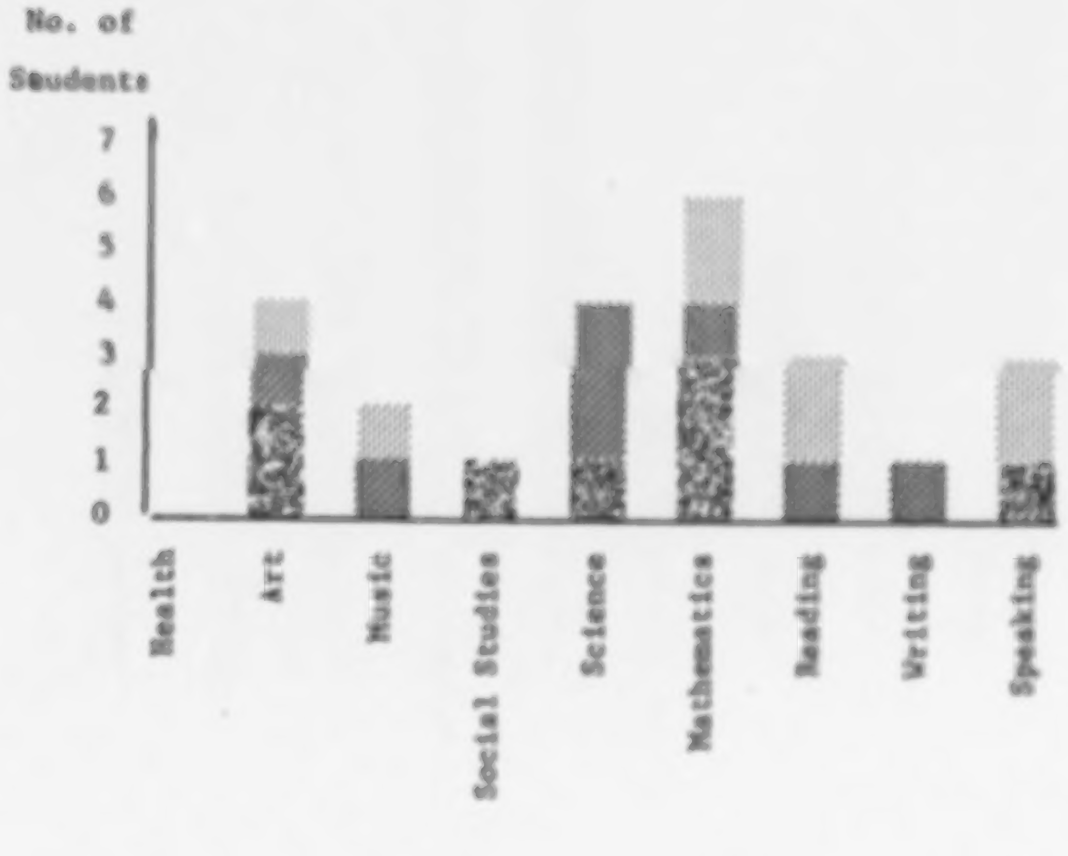
1st Choice - ▩
2nd Choice - ▦
3rd Choice - ▨

MITZEL-MEDLEY TEST

Part B

2nd Testing - Winter 1960

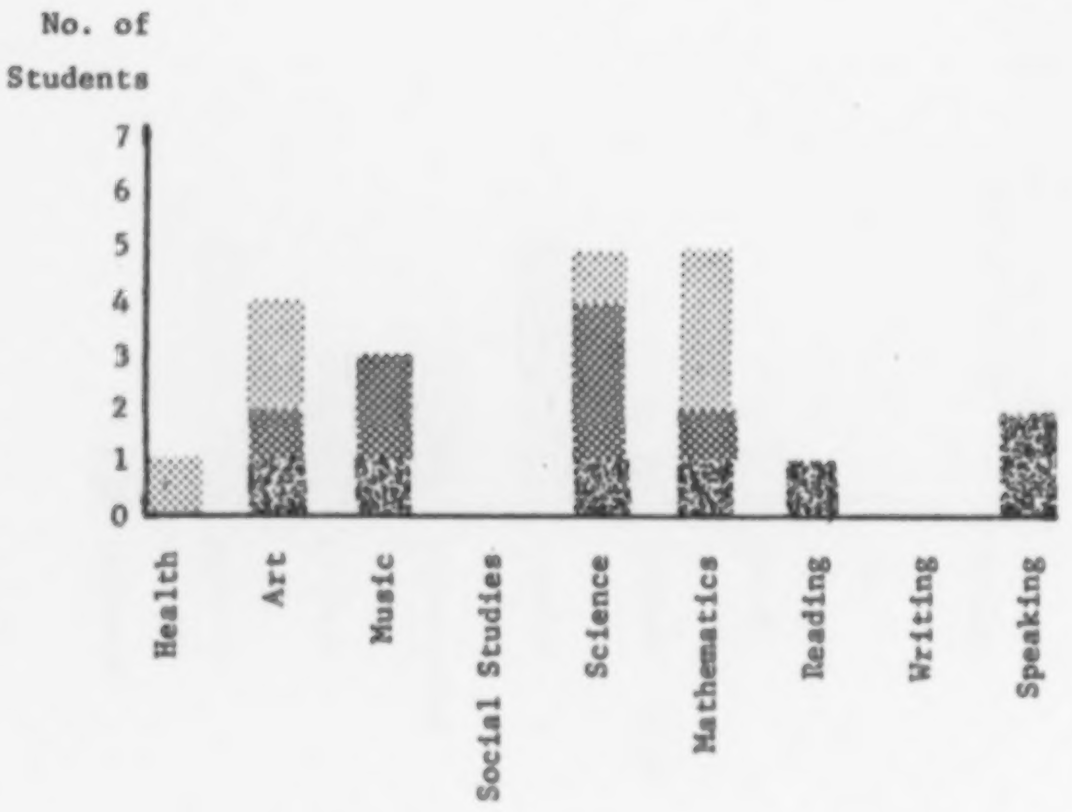
Television Students - 8



1st Choice - ▩
2nd Choice 1 ▦
3rd Choice - ▒

MITZEL-MEDLEY TEST
Part B

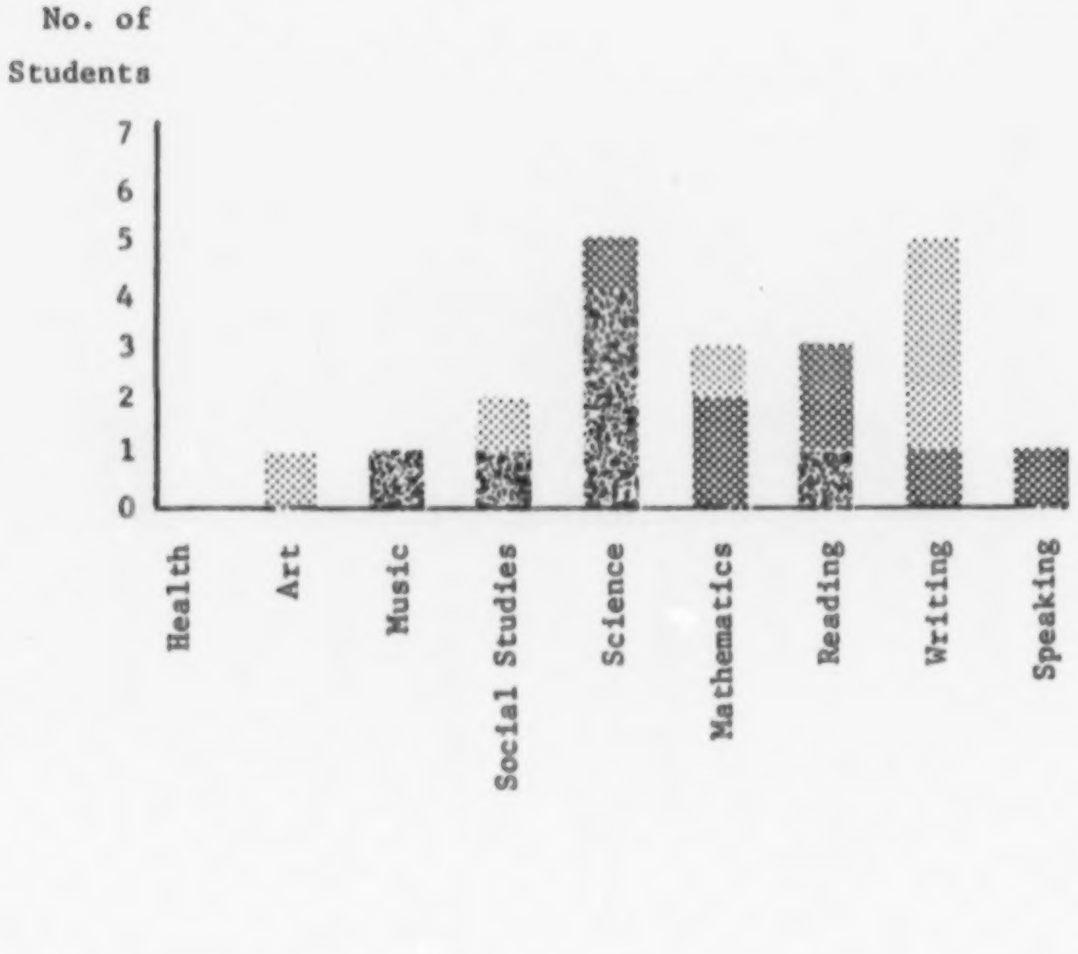
2nd Testing - Winter 1960
Tape Students - 7



1st Choice - ▩
2nd Choice - ▦
3rd Choice - ░

MITZEL-MEDLEY TEST
Part B

2nd Testing - Winter 1960
Control Students - 7



APPENDIX D

Chart 10, MM-Pre

	df	ss	ms	F	P	Accept or Reject
Method	2	878.459	439.229	<1	n.s.	Accept
Term	2	2068.018	1034.009	1.221	n.s.	Accept
M x T	4	18536.427	4634.106	5.472	$<.01$	Reject
Within	55	46571.956	846.762	-		
Total	63	68054.860	-	-		

Correction Factor = $\frac{144841225}{64}$ = 2263144.140

SS Total $\underline{2331199}$ - 2263144.140 = 68054.860

Method $\frac{15768841}{21} + \frac{14768649}{21} + \frac{17816841}{22}$

750897.190 + 703269.000 + 809856.409 - 2,263,144.140 = 878.459

Term $\frac{15984004}{22} + \frac{16859236}{21} + \frac{15452761}{21}$

726545.636 + 802820.761 + 735845.761 - 2263144.140 = 2068.018

M x T $\frac{1575025}{7}$ (=225003.571) + $\frac{2205225}{7}$ (=315032.142) + $\frac{1582564}{7}$ (=226080.571)

$\frac{1708249}{7}$ (=244035.571) + $\frac{1530169}{7}$ (=218595.571) + $\frac{1687401}{7}$ (=241057.285)

$\frac{2062096}{8}$ (=257762.000) + $\frac{1990921}{7}$ (=284417.285) + $\frac{1887876}{7}$ (=269696.571)

2281680.567 - 2263144.140 = 18536.427

Chart 11, MM-Post

Analysis of Variance

	df	ss	ms	F	P	Accept or Reject
Method	2	3978.472	1989.236	1.854	n.s.	Accept
Term	2	5748.811	2874.405	2.679	n.s.	Accept
M x T	4	13,062.962	3265.740	3.044	n.s.	Accept
Within	56	60,072.740	1072.727	-		
Total	64	82,862.985	-	-		

Correction Factor (c.f.) = $\frac{101,525,776}{65}$ = 1,561,935.015

SS Total 1,644,798 - 1,561,935.015 = 82,862.985

Method $\frac{12,873,744}{22} + \frac{10,942,864}{21} + \frac{10,112,400}{22}$ - C.F. = 3978.472

Term $\frac{10,150,596}{22} + \frac{13,557,124}{22} + \frac{10291264}{21}$ - C.F.

=461390.727 + 616232.909 + 490060.190 - (1561935.015)

=5748.811

M x T = $\frac{1050625}{7}$ (=150089.285) + $\frac{2214144}{8}$ (=276768.000) + $\frac{1155625}{7}$ (=165089.285)

+ $\frac{1032256}{7}$ (=147465.142) + $\frac{1420864}{7}$ (=202980.571) + $\frac{1210000}{7}$ (=172857.142)

$\frac{1311025}{8}$ (=163878.125) + $\frac{1004004}{7}$ (=143429.142) + $\frac{1067089}{7}$ (=152441.285)

1574997.977 - 1561935.015 = 13062.962

Chart 12, MM-Post Post

	df	ss	ms	F	P	Accept or Reject
Method	2	1586.940	793.470	.956	n.s.	Accept
Term	2	1489.227	744.613	.897	n.s.	Accept
M x T	4	5272.835	1318.208	1.589	n.s.	Accept
Within	35	29033.180	829.519	-		
Total	43	37382.182	-	-		

Correction Factor $= \frac{47,941,776}{44} = 1,089,585.818$

SS Total $\underline{1126968.000} - 1,089,585.818 = 37,382.182$

Method $\frac{6969600}{16}\ (=435600) + \frac{5134756}{15}\ (=342317.066)$

$+ \frac{4072324}{13}\ (=313255.692) - 1089585.818 = 1586.940$

Term $\frac{7344100}{18} + \frac{3258025}{11} + \frac{5803281}{15}$

$408005.555 + 296184.090 + 386885.400 - 1089585.818 = 1489.227$

M x T $\frac{361201}{4}\ (=90300.250) + \frac{1123600}{6}\ (=187266.666) + \frac{958441}{6}\ (=159740.166)$

$+ \frac{1177225}{7}\ (=168175.000) + \frac{194481}{3}\ (=64827.000) + \frac{547600}{5}\ (=109520.000)$

$+ \frac{1048576}{7}\ (=149796.571) + \frac{92416}{2}\ (=46208.000) + \frac{476100}{4}\ (=119025.000)$

i.e. $1094858.653 - 1089585.818 = 5272.835$